

Leniency
Programs

Joe
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Leniency Programs: Past Experiences and Future Challenges

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Instituto Milenio SCI

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- Cartel enforcement can be made more effective by
 - raising the probability of detection and conviction
 - raising penalties
- A *corporate leniency program* offers reduced penalties to a cartel member, in exchange for cooperating with the competition authority.
- Currently, more than 50 countries and unions have leniency programs.

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Overview

- 1 Experience of leniency programs
- 2 Economics of leniency programs
- 3 Maximizing the impact of a leniency program
- 4 Measuring the impact of cartel enforcement

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- U.S. (1978, revised 1993, revised 2004)
 - Pre-1993: about one application per year (17 applications in total)
 - Post-1993: 1-2 per month; 20-fold increase in the number of applications
- 1991 Revision of Federal Sentencing Guidelines substantially raised government penalties.
 - 1990-91
 - Average corporate fine was \$320,000.
 - Largest corporate fine was \$2 million.
 - Post-1991
 - 18 companies have been fined more than \$100 million.
 - Hoffman LaRoche - \$500 million (1999).

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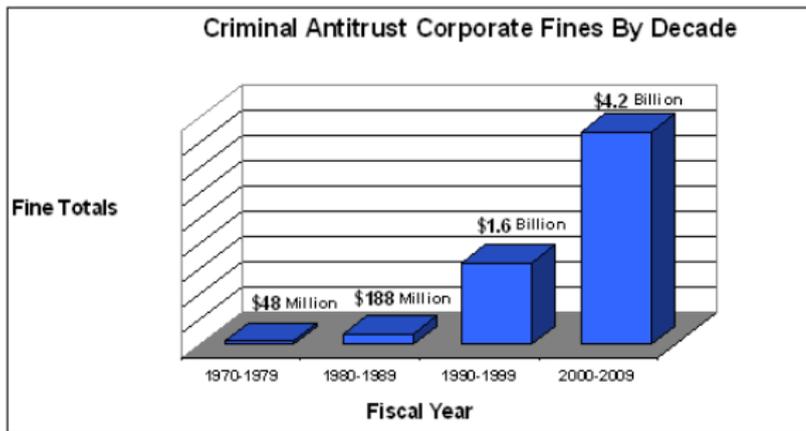
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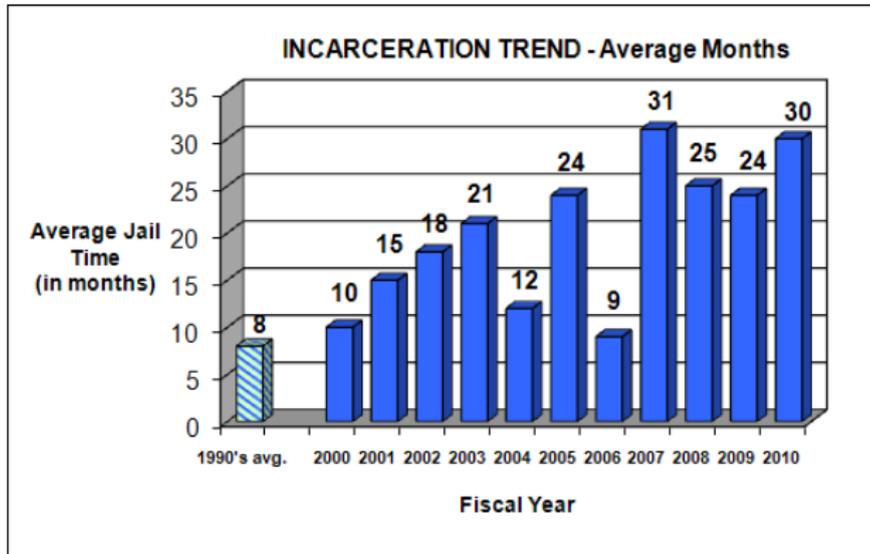
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- More extensive use of jail time.
- 2004: Increase in maximum prison time to 10 years.



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- EU (1996, revised 2002)
- Initially overwhelmed with applications.
 - "DG Competition is now in many ways the victim of its own success; leniency applicants are flowing through the door of its offices, and as a result the small Cartel Directorate is overwhelmed with work." (Riley, *Competition Law Review*, 2007)
 - Provided partial or full leniency in 45 of 50 cartel cases (1998 - 2007)
- Significant increase in penalties
 - Leniency lowered average fines per cartel by almost 40% from 199 million to 123 million euros (1998 - 2007)
 - Saint-Gobain, €896 million (2008)
 - Fines can now be 12 times additional profits earned through collusion.

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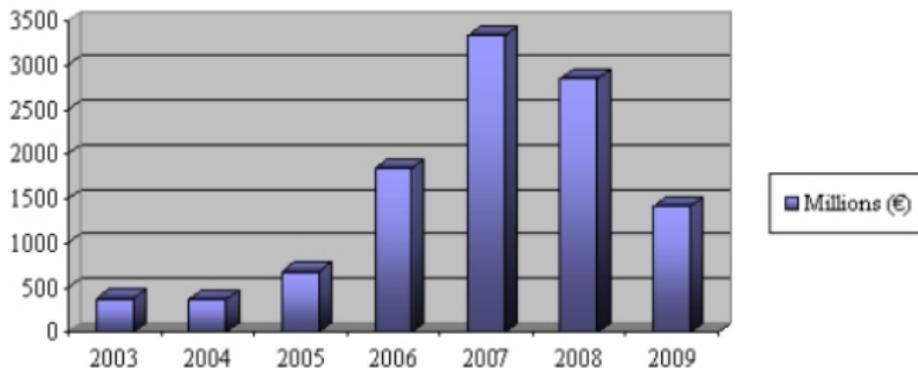
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EC Fines (2003 - 2009)



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- South Africa is receiving about three applications per month (exceeding the current U.S. rate of two per month).
- Spain
 - 28 February 2008: Leniency program is activated. Seven applications are received on the first day.
 - 21 January 2010: First sanctions decision adopted by the CNC based on a leniency application.
- What may be responsible for an active leniency program?
 - Some chance of the cartel being caught by the authorities.
 - Clear and reasonable legal standards for proving guilt.
 - Large penalties.

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Firm 2

		Apply	Not apply
Firm 1	Apply	$d + \frac{1}{2}f, d + \frac{1}{2}f$	$d, d + f$
Not apply	$d + f, d$	$p(d + f), p(d + f)$	

- f is the penalty avoided by receiving leniency (for example, government fine)
- d is the penalty not avoided by receiving leniency (for example, customer damages)
- p is the probability of a conviction when neither firm applies for leniency.
- Each firm chooses the option that minimizes expected penalties.

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- Solution when the probability of being convicted is low:
 $p(d + f) < d$ or $p < \frac{d}{d+f}$.
 - Solution 1: Both apply for leniency.
 - Solution 2: Both do not apply for leniency.
 - Coordination game, and firms want to coordinate on not applying.
- Solution when the probability of being convicted is high:
 $p(d + f) > d$ or $p > \frac{d}{d+f}$.
 - Unique solution: Both apply for leniency.
 - Prisoners' Dilemma (dominant strategy is "apply")

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- Leniency is a Prisoners' Dilemma when *probability of being caught exceeds % of penalty not covered by leniency*.
- An objective of competition policy is to turn a coordination game into a Prisoners' Dilemma by
 - raising penalties (increasing f)
 - increasing the fraction of penalties avoided through leniency (decreasing $\frac{d}{d+f}$).
 - Example: U.S. Antitrust Criminal Penalty Enforcement and Reform Act (2004) expanded leniency so that a firm receiving amnesty is only liable for single (not treble) customer damages.
 - raising the probability of conviction without use of the leniency program (increasing p).

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- 1 Increasing penalties
- 2 Screening - using market data to identify the presence of collusion.
- 3 Whistleblower programs - offer rewards for information received from people not involved in the cartel.

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"Trust, Salience, and Deterrence" (M. Bigoni, S. Fridolfsson, C. Le Coq, and G. Spagnolo, 2010)

- Two subjects compete in a simulated product market and receive monetary compensation equal to profit.
- Each subject decides whether to push a button to express a desire to communicate.
 - If both pressed the button then they communicate about prices.
 - Communication makes them liable for penalties.
- Subjects choose prices and, if they communicated, decide whether to apply for leniency.
- If they communicated and no one applied for leniency then a penalty of f is levied with probability p .

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Effect of leniency program
on the amount of communication

f	p	Expected	Rate of Communication	
		Fine	No leniency	Leniency
200	0.10	20	.590	.344
1000	0.02	20	.378	.251
300	0.20	60	.452	.436
1000	0.00	0	.538	.280

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- *Screening* is the use of market data to identify markets where collusion is suspected.
- Purpose of screening is not to deliver evidence to convict colluders, but rather to
 - identify markets worthy of investigation
 - induce cartel members to come forward under a leniency program
 - deter cartels from forming.

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- A *structural approach* identifies markets with traits conducive to the formation of a cartel.
- Factors conducive to cartel formation include:
 - fewer firms
 - more homogeneous products
 - less volatile demand
 - more excess capacity
- Problem of too many false positives
 - Imagine the "ideal" market for collusion: two firms, homogeneous products, stable demand, no large buyers, excess capacity, . . .
 - In practice, only a small fraction of such markets probably have cartels.
 - The reason is that there are many omitted (unmeasured) factors that influence whether a cartel forms.

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- A structural approach is based on data about the industry which makes it more likely that a cartel will form.
- A *behavioral approach* uses data that may itself be evidence that a cartel has formed.
 - Identify the means of coordination - evidence of direct communication.
 - Identify the end result of that coordination - firms' prices or quantities or some other aspect of market behavior.
- Behavioral screening has been successfully used to detect other crimes:
 - insider stock trading
 - tax evasion
 - credit card fraud

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- Identify a break in the market data-generating process
 - Collusion necessarily entails a change in the data-generating process with respect to price and market share.
 - This change can be abrupt and, in principle, detectable.
 - It can be associated with the formation of a cartel but also its demise.
- Examples
 - Has average price changed?
 - Has the relationship between a firm's price and cost changed?
 - Has the relationship among firms' prices changed?
 - Has the variance of price and market share changed?

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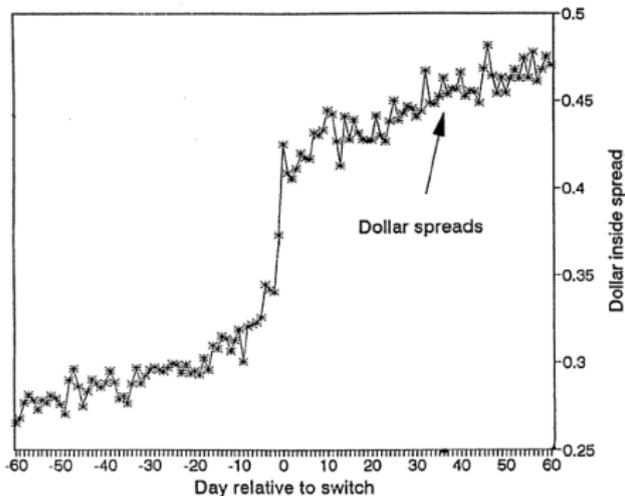
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- Screening would have probably identified collusion in Nasdaq markets (W. Christie and P. Schultz, 1999)



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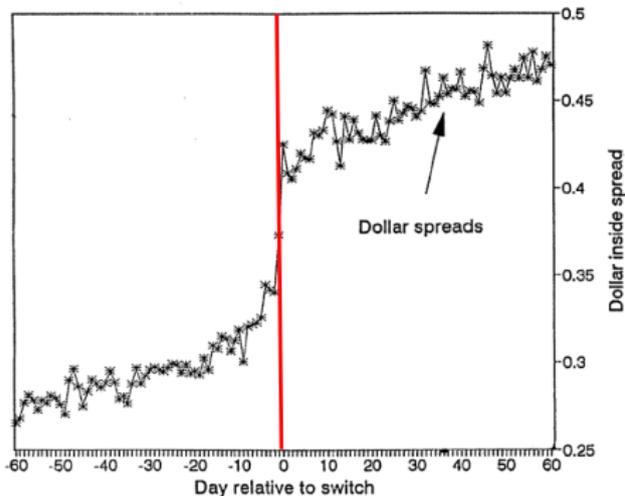
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- Why engage in screening when there is a leniency program?
 - Leniency programs may be ineffective when firms are not concerned about being caught.
 - Screening can create those concerns.
 - Identifying an industry for investigation could induce a race among cartel members to apply for leniency.
- Leniency programs and screening are complements.
 - *Screening enhances the efficacy of a leniency program:* The more likely a cartel member believes it'll be caught, the more apt it is to apply for amnesty.
 - *A leniency program enhances the efficacy of screening:* If a competition authority discovers a suspected cartel, those suspicions might induce a firm to apply for amnesty.

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- *Recommendation:* Screen government procurement contracts.
- Public procurement auctions encompass 45-65% of government expenditure and 13-17% of GDP.
- Bidding rings are common at procurement auctions.
- Data is available.
- Foundation of solid empirical analysis on collusion in procurement auctions
- Potentially large reputation effect.

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Whistleblower Programs

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- A leniency program is designed to induce those people with the best information about collusion - the cartel members themselves - to report.
- Develop programs to induce other people who have information to report it to the antitrust authority.
 - Buyers
 - Employees of the colluding firms who are not involved in the conspiracy
 - Competing firms who are not members of the cartel

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- In many cartels, buyers are not final consumers but rather industrial buyers.
- Industrial buyers have very good information.
- Suspicions might arise because:
 - prices are steadily rising and cost and demand factors cannot explain the price increases.
 - some suppliers are no longer willing to bid for their business (as part of a customer allocation scheme).
 - firms' price changes are much more coordinated; now, firms change their prices within a few days of each other.

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- Uninvolved company employees
- Sales representatives
 - They witness the change in prices.
 - They might be instructed not to compete aggressively.
 - Not to bid for some company's business (as part of a customer allocation scheme).
 - Not to deviate from the price list even when business will be lost.
- Administrative staff
 - Observes suspicious expenses.
 - Notices that a manager personally handles certain appointments.

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- Fine arts auctions cartel (EC decision)

Sotheby's submits that some of its personnel commented that they had a "feeling" that the introduction of the fixed vendor's commission structure may have arisen out of some sort of understanding with Christie's. Such suspicions were supported by the fact that London had given strict instructions not to depart from the published commission structure and to monitor and report to senior management any discounts offered by Christie's in contravention of its published rates.

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- Carbonless paper cartel (EC decision)

A Sappi employee admits that he had very strong suspicions that two fellow employees had been to meetings with competitors. He recollects that they would come back from trade association meetings with a very definite view on the price increases that were to be implemented and that they were relatively unconcerned by competitor reactions.

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- Korea Fair Trade Commission
 - 2005 - launched program
 - Whistleblower received a reward of almost €50,000 for information about a cartel among welding rod makers.
- UK's Office of Fair Trading
 - 2008 - rewards of up to £100,000.
- U.S. False Claims Act
 - A non-government employee can file actions for fraud against federal government contractors.
 - Whistleblower is entitled to 15-25% of the government's total recovery.
 - General Accountability Office is currently evaluating the use of a whistleblower program for cartel offenses.

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- Having instituted an anti-cartel program, it is critical to assess its impact.
 - Has it achieved the desired objectives?
 - What has worked and what has not?
 - How can it be improved?
- Desistance: discovering and shutting down cartels
- Deterrence: preventing cartels from forming.

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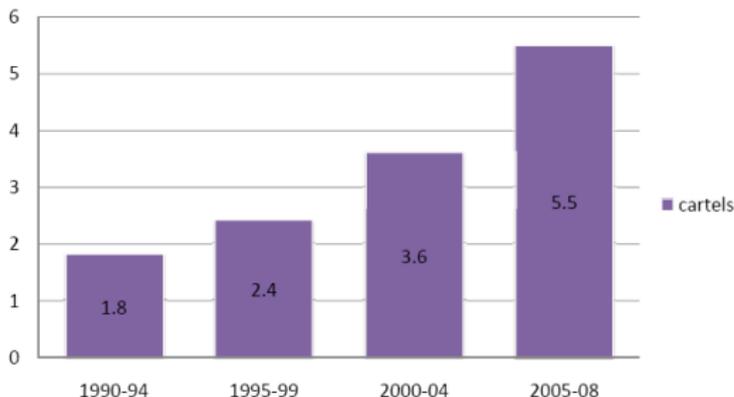
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Is cartel enforcement working?

Rates of Discovery by the European Commission Rise Steadily



Source: Connor (2008)

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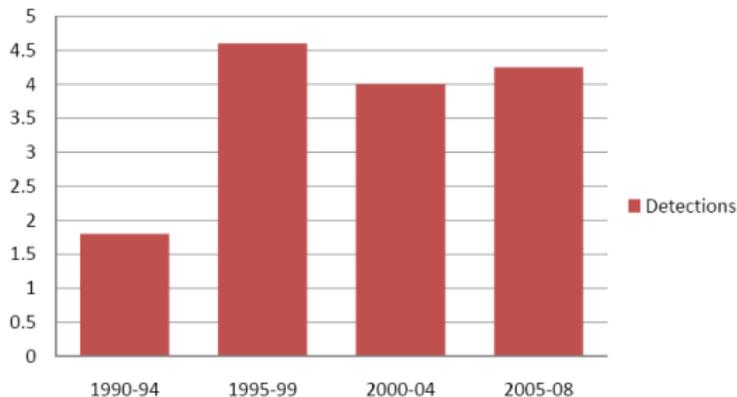
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Is cartel enforcement working?

Cartel Detections by the US and Canada Are Stalled



Source: Connor (2008)

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- If the number of discovered cartels is rising, is that because cartel enforcement is
 - *working* as detection is more effective?
 - *not working* as there are more cartels?
- If the number of leniency applications starts to fall, is that because
 - there are fewer cartels due to the leniency program?
 - cartels have modified their practices to make the leniency program less effective?

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- Success is measured by a decline in the number and size of cartels in the economy.
- Fundamental data problem
 - To measure the effect on the number of cartels requires observing the population of cartels.
 - Since collusion is illegal, cartels hide themselves.
 - We observe only the population of discovered cartels.
 - Any measure is judged by the extent to which it tells us something about the population of cartels.
- Challenge: The key performance measure - the population of cartels - is not observed.

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Question How can we measure the impact of competition policy on cartel activity?

- 1 Survey of companies and law firms.
- 2 Estimate the effect of enforcement activity on price-cost margins.
- 3 Estimate the effect of policy on the population of cartels by drawing inferences from the population of discovered cartels.

Measuring the Impact of Cartel Enforcement Surveys

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- UK Office of Fair Trading commissioned Deloitte to measure the deterrent effect of its competition work.
- Method
 - Telephone survey of 234 senior competition lawyers in the UK and Brussels, Sept-Nov 2006.
 - Telephone survey of 202 UK companies, Feb-Mar 2007.



Measuring the Impact of Cartel Enforcement Surveys

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- Respondents were asked:

"Are you aware of any instances in which an existing or proposed collusive agreement was abandoned because of the risk of an OFT investigation?"

- For 2000-06, calculated:

$$\frac{\text{number of agreements impacted by the OFT}}{\text{number of agreements that resulted in an OFT decision}}$$

- Lawyers: 5 to 1
- Company executives: 16 to 1
- *What did we learn?*

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Impact of Prosecutions on Price

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- Consider a collection of related markets
 - Retail gasoline markets
 - Road construction procurement auctions
 - Chemicals
- Does antitrust enforcement in one of these markets reduce price-cost markups in related markets?
- Block, Nold, and Sidak (1981)
 - Regional markets for white pan bread, 1965-76.
 - Observe price p and construct marginal cost mc to estimate price-cost margin, $\frac{p-mc}{mc}$.
- Is the price-cost margin lower
 - when the U.S. Department of Justice filed an action in another city in that region in that year? YES
 - for the city in which an action was filed in the preceding year? YES

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Discovered Cartel Activity

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- Miller (2009)
- Data: 1985 - 2005
- Hypothesis #1: *If the 1993 revision resulted in an increase in the probability of discovery then there is an immediate rise in the number of discovered cartels.*
- Hypothesis #2: *If the 1993 revision resulted in a decrease in the rate of cartel formation then the number of discovered cartels should adjust to a lower steady level.*

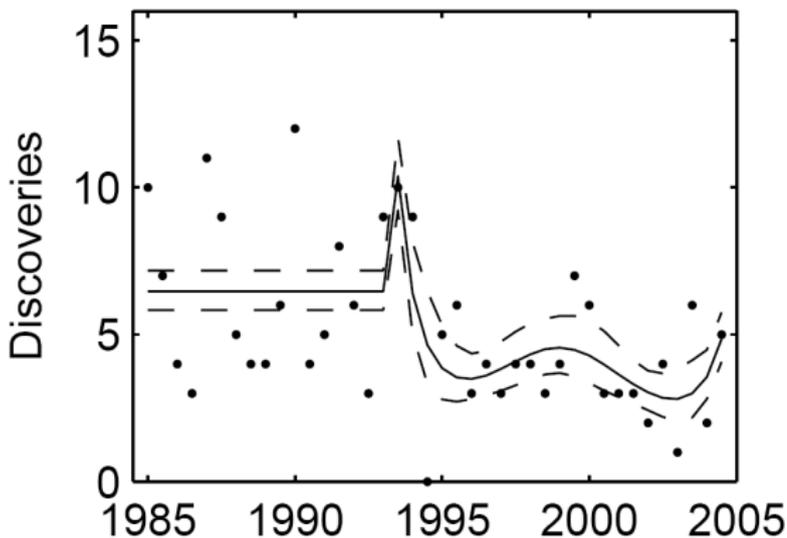
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Discovered Cartel Activity

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- Actual and estimated number of DOJ cartel cases (over a six-month interval).



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Leniency
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Joe
Harrington

Introduction

Experience of
Leniency
Programs

Economics of
a Leniency
Program

Maximizing
the Impact of
a Leniency
Program

Measuring the
Impact of
Cartel
Enforcement

- *What is it that we can measure? What data should be collected?*
- Characteristics of discovered cartels
 - Number of discovered cartels
 - Cartel duration (Harrington and Chang, 2009)
 - Manner in which cartel was discovered
 - Leniency program
 - Customer complaint
 - Competitor
 - Whistleblower
 - Other investigation (merger, private suit, etc.)

Measuring the Impact of Cartel Enforcement

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Measuring the Impact of Cartel Enforcement

- Leniency applications
 - Number of leniency applicants
 - Reasons for applying (what changed to induce them to come forward?)
 - Fear of being caught by the competition authority?
 - Fear of pre-emption by another cartel member?
 - Change in management?
 - No longer colluding?
- Prevention and response by management to collusion
 - Antitrust compliance programs
 - Company treatment of employees who colluded (fired? reassigned? promoted?)
- Price response
 - Comparison of pre-cartel and cartel price
 - Comparison of cartel and post-cartel price
 - Is price falling after discovery? conviction?

New Directions in Cartel Enforcement

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- Data collection and analysis
 - Document how a cartel was discovered, why a firm applied for leniency, how a company responded internally, etc.
 - Require firms to provide price data to assess the effect of cartels and cartel enforcement.
 - Measure the impact of anti-cartel programs.
- Screening markets for cartels
 - Use market data to identify markets worthy of investigation.
 - Monitor government procurement auctions.
- Whistleblower programs
 - Provide financial rewards to induce those people with information about cartels to report it.
 - Uninvolved company employees, customers, sales representatives of non-colluding competitors.