

# The Battle Against Hard Core Cartels: Measurement and Incentive Challenges

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Antitrust Enforcement in the Presence of Successful Leniency Programs  
Norwegian School of Economics

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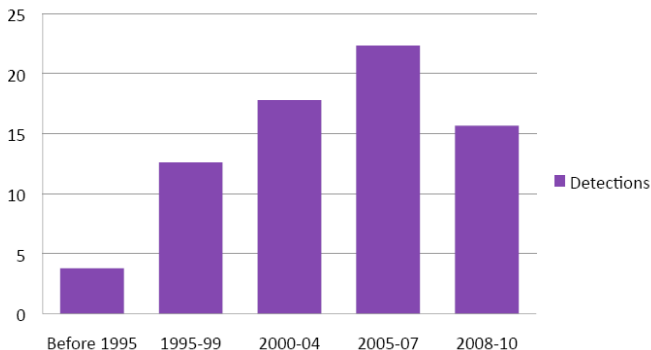
# Introduction

## Is the world becoming inhospitable for cartels?

- More aggressive policies
  - Penalty formulas are more severe
    - US: 1991 Revision of Federal Sentencing Guidelines, ex: Hoffman LaRoche - \$500 million.
    - EU: 2006 Fine Guidelines, ex: Saint Gobain - €896 million.
  - US: maximum jail sentence raised from 3 to 10 years
  - EU: introduction of customer damages
  - Corporate Leniency Programs
    - U.S. (1978, revised 1993, revised 2004)
    - EU (1996, revised 2002)
    - Over 50 countries and unions have leniency programs.
- Evidence of increased enforcement

# Introduction

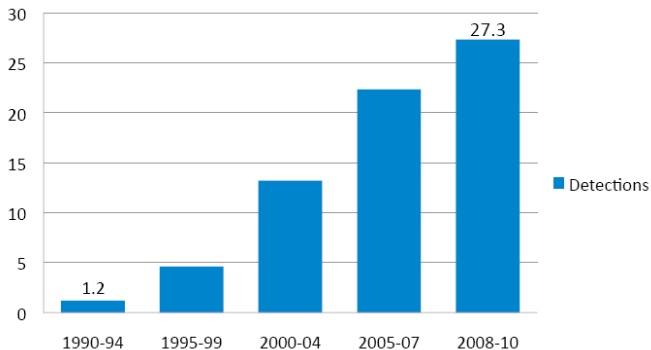
## Annual Cartel Detections by the US & EC Peaked in 2005-07



Source: Connor (2011)

# Introduction

## Detection Rates by the EU's NCAs Surpass All Others since 2000



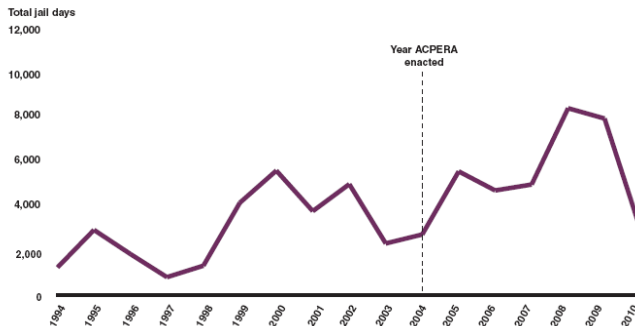
Source: Connor (2011)

# Introduction

## ● US DOJ

- 1998 - 2004: 44% of defendants were sentenced to jail.
- 2004 - 2010: 74% of defendants were sentenced to jail.

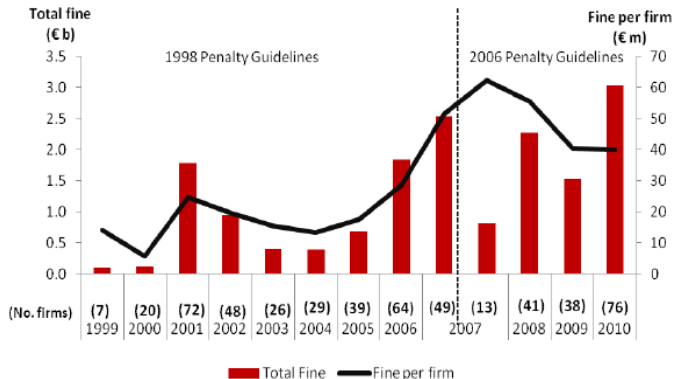
**Figure 6: Total Days of Jail Time Imposed in Criminal Cartel Cases, by Fiscal Year of Sentencing**



Source: GAO (2011)

# Introduction

**Figure 1 Total and per firm fines, 1999-2010.**



Source: Veljanovski (2011)

# Introduction

Cartels are still forming!

- 1993: Revision of U.S. leniency program
- 1996: Introduction of EC leniency program
- 1999: *DRAM cartel formed*
- 2001: *LCD Panel cartel formed*
- 2002: Revision of EC leniency program
- 2004: *Flat Glass cartel formed*

# Introduction

- Are we winning the war against cartels?



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  - Measuring the impact of enforcement
  - Analyzing competition authority behavior

# Introduction

- Are we winning the war against cartels?
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- Are we trying to win the war?
  - Incentive challenge
- Overview
  - Measuring the impact of enforcement
  - Analyzing competition authority behavior
  - Some policy directions

# Measuring the Impact of Enforcement

- How many cartels are there? Have their number and severity been declining?
- Are policies - such as leniency programs - proving effective?
  - Have they reduced the cartel rate?
  - Have they reduced the overcharge?
  - Have they reduced cartel duration?
- Are policies reducing the incentives to collude?
  - Have they reduced the expected profitability of forming a cartel?
  - Have they increase the probability of detecting cartels?
  - Have they aiding in prosecuting cartels?



# Measuring the Impact of Enforcement

- Challenge: The key performance measure - the population of cartels - is not observed.

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

- 1 Survey companies and law firms.
- 2 Assess what actions companies are taking to discourage their managers from participating in a cartel.
- 3 Estimate the effect of enforcement activity on price-cost margins.
- 4 Estimate the effect of policy on the population of cartels by drawing inferences from the population of discovered cartels.

# Measuring the Impact of Enforcement

## Surveys

- 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 Enforcement

## Surveys

- 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 really learn?*

# Measuring the Impact of Enforcement

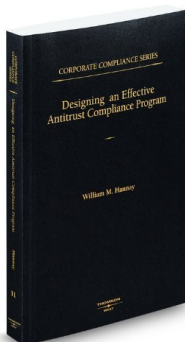
## Firm Behavior

- Are companies taking measures to discourage their managers from participating in a cartel?
  - Instituting *effective* antitrust compliance programs (ex ante)
  - Severely disciplining managers who collude (ex post)
- Senior management may act in this manner if
  - collusion is unprofitable for shareholders (but is it?)
  - collusion is beneficial to managers through their compensation scheme
- These conditions are unlikely to hold in the U.S. where
  - collusion appears profitable.
  - convicted price-fixers are imprisoned.
- Many cartels *involved* senior management
  - CEOs: graphite electrodes, fine arts auction houses, packaging (Australia), marine hoses, food flavor, Dutch industrial gases, carbonless paper.

# Measuring the Impact of Enforcement

## Firm Behavior

- Is the adoption of an antitrust compliance program evidence that senior management wants to discourage collusion?
- Does senior management want its antitrust compliance program to work?



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## Why Your Antitrust Compliance Program Doesn't Work

Ken Alexander

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porterhedges.com



# Measuring the Impact of Enforcement

## Firm Behavior

Are employees severely punished for participating in a cartel?

- U.S.: Non-issue as they are often imprisoned.
- EU: Are companies starting to punish employees?
  - Robert Koehler is still CEO of SGL Carbon after admitting to price-fixing in graphite electrodes (1999).
  - British Airways promoted an executive when he was pending trial in the passenger fuel surcharges case (2007).
- Needed: An examination of the career impact of being a convicted colluder.

# Measuring the Impact of Enforcement

## Firm Behavior



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## BA sales chief on price-fixing charge to join board

By Michael Peel, Legal Correspondent

Published: November 28 2008 02:00 | Last updated: November 28 2008 02:00

A British Airways executive facing the threat of jail for allegedly fixing fuel prices has been promoted to the company's board as part of a restructuring programme.

Andrew Crawley, BA's head of sales, will take up his post in January, less than two weeks before he is due to appear in court along with three former BA executives accused of the same offence.

# Measuring the Impact of Enforcement

## Firm Behavior

- Antitrust compliance programs are unlikely to be very effective even if firms wanted them to be so.
  - A. Stephan, "Hear no Evil, See no Evil: Why Antitrust Compliance Programmes may be Ineffective at Preventing Cartels," U. of East Anglia, CCP Working Paper 09-09.
- Until companies fire employees who participated in a cartel, they have not revealed a preference to discourage collusion.
- Collusion is probably still in shareholders' best interests and, therefore, senior management does not want to discourage it.



# Measuring the Impact of Enforcement

## Price Effects

- 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

# Measuring the Impact of Enforcement

## Price Effects

### Klein (2010)

- Data
  - 23 OECD countries
  - 23 two-digit industries
- Model

$$\ln PCM_{i,j,t} = \beta_L \text{Leniency}_{i,t-2} + \beta_P \text{Policies}_{i,t-2} + \beta_X \ln X_{i,t-1} + \epsilon_{i,t}$$

- $PCM_{i,j,t}$  = price-cost margin for industry  $j$  in country  $i$  for year  $t$ .
- $\text{Leniency}_{i,t-2} = 1$  if a leniency program was in place in country  $i$  in year  $t - 2$ .
- $\text{Policies}_{i,t-2}$  is a vector of other competition-affecting policies (e.g., EU leniency program dummies for 1996 and 2002)
- $X_{i,t-1}$  is a vector of other variables impacting the PCM (e.g., business cycle, import penetration)
- country-industry specific fixed effects

# Measuring the Impact of Enforcement

## Price Effects

- National leniency programs were associated with a reduction in the average price-cost margin of 3 - 5%.
- Critique
  - Difficult to distinguish one program effect from other aspects of more aggressive enforcement.
  - Are there enough cartels in the economy to have a significant impact on the average price-cost margin?
  - Focus instead on the impact on the upper tail of PCMs.

# Measuring the Impact of Enforcement

## Discovered Cartel Activity

- Using data on discovered cartels.
- 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?

# Measuring the Impact of Enforcement

## Discovered Cartel Activity

- How do changes in the *observable* population of discovered cartels relate to changes in the *latent* population on discovered cartels?
- Build a model that endogenizes the stochastic process producing a population of cartels.
- Derive how a policy change impacts
  - population of discovered cartels
  - population of cartels.

# Measuring the Impact of Enforcement

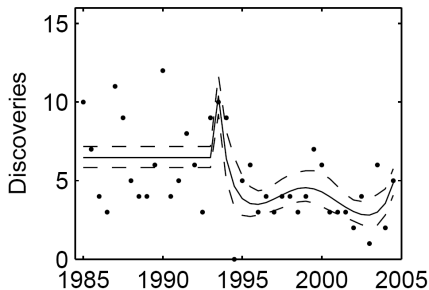
## Discovered Cartel Activity

- 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.*

# Measuring the Impact of Enforcement

## Discovered Cartel Activity

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



- Kai-Uwe Kühn's critique: Is this pattern really there? Is it driven by other enforcement changes?

# Measuring the Impact of Enforcement

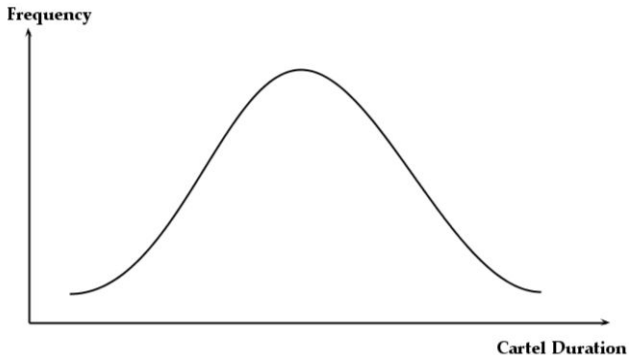
## Discovered Cartel Activity

- Harrington and Chang (2009)
- Proxy for the cartel rate: Average duration of discovered cartels.
- Consider a policy that is intended to make detection more likely.
- If the policy is working then the average duration of discovered cartels rises because
  - the least stable cartels shut down (and exit the cartel population)
  - surviving cartels are relatively stable (and thus have longer duration).
- If the policy is ineffective then there is no impact on the average duration of discovered cartels.
- Implication: If a new anti-cartel policy is working then the average duration of discovered cartels should rise (in the short-run).



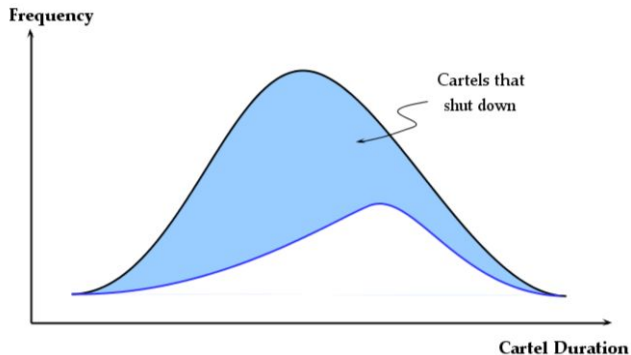
# Measuring the Impact of Enforcement

## Discovered Cartel Activity



# Measuring the Impact of Enforcement

## Discovered Cartel Activity



# Measuring the Impact of Enforcement

## Takeaways

- Open questions
  - Is the cartel rate lower now than in 1990? in 2000? in 2005?
  - Have leniency programs reduced the frequency of cartels?
- Competition authorities need to focus more on measuring the impact of their policies.
  - Collecting and sharing relevant data.
  - Working with scholars.

# Competition Authority Behavior

- What is the objective of a competition authority?
  - Minimize the cartel rate?
  - Minimize the impact of cartels on the economy?
- Are there inherent biases due to how performance is measured and rewards are determined?
- What are the implications for enforcement?

# Competition Authority Behavior

- A competition authority decides
  - how to allocate resources across detection, prosecution, penalization, and evaluation.
  - whether to actively discover cartels or just respond to leniency applications, customer complaints, etc.
  - how many cases to take on, and which cases to take on.
  - what penalties to impose.
  - whether to evaluate policies and performance.
- These choices influence
  - desistance - shutting down cartels
  - deterrence - discouraging cartel formation

# Competition Authority Behavior

- Assumption: Competition authorities maximize *observable* performance measures.
- Cartel rate is unobservable and thus is not a relevant performance measure.
- What do competition authorities emphasize in terms of performance?

# Competition Authority Behavior

## Measuring Performance



Thomas Barnett, Assistant Attorney General - Congressional Testimony (Sept. 25, 2007)

*"The Division set a record for the most jail time imposed (almost 30,000 jail days); obtained the second highest amount of fines in the Division's history (over \$630 million); and succeeded in obtaining the longest jail sentence for a foreign national charged with an antitrust offense (14 months)."*

# Competition Authority Behavior

## Measuring Performance



- In Defence of Competition Policy (October 13, 2008)

*"Enforcement may have been lacking in some financial regulators, but never in competition policy. Taking the example of cartels: €6 billion in direct consumer benefits have been delivered in the last four years."*



# Competition Authority Behavior

## Measuring Performance



Effective cartel prosecution  
Benefits for the economy and consumers



### 4. Number of leniency applications filed to date

The first version of the Leniency Programme was already a success. This can be seen by the number of leniency applications filed: Between 2000 and 2005 a total of 122 leniency applications were filed. Under the new Leniency Programme, a further 112 were filed in only four years (2006–2009). Thus, more than 230 leniency applications have already contributed to successfully uncover, end and punish cartel agreements.<sup>19</sup>

# Competition Authority Behavior

## Measuring Performance

- What is said?
  - Desistance
    - Number of cartel cases
    - Number of leniency applications
    - Consumer benefits from lower prices.
  - Penalization: corporate fines, jail time.
- What is not said?
  - Deterrence
  - Prevalence of cartels
- Possible implications are:
  - under-detection
  - under-deterrence

# Under-detection

Historically, the foci of competition authorities were prosecution and desistance.

*"As a general rule, the [Antitrust] Division follows leads generated by disgruntled employees, unhappy customers, or witnesses from ongoing investigations. As such, it is very much a reactive agency." (Antitrust Bulletin, 1991)*

*"The OFT has been too reliant on complaints as a source of its competition enforcement work. The OFT should start a greater proportion of investigations on its own initiative." (Committee of Public Accounts Report, 2006)*

# Under-detection

## Biases which may lead to under-detection

- Does a CA see itself as pursuing cases reported to it, or does it perceive its role as actively discovering cartels?
- Why may there be under-detection?
  - CA may already have a lot of cases.
  - Excessive reliance on leniency programs.
  - Cases discovered by the CA may be more difficult to prosecute.
  - For international cartels, there may be free-riding on detection by other CAs.

# Under-detection

How effective are leniency programs in detecting?

Is there over-attribution of detection to leniency programs?

- Sorbates cartel
  - Chisso received full amnesty from the EC.
  - The next day, the U.S. DOJ announced that one of the sorbates manufacturers pled guilty to price-fixing.

Table 2 – Proportion of US leniency success (Jul 1996 – Feb 2005)

	No of Cases	Fines (€ million)	Proportion of Total Fines (%)
<b>Cases Triggered By Leniency Applications</b>	20	2,652	69.7%
But where International Cartels with prior/simultaneous U.S. policy success	14*	1,961	51.6%
EU Only Leniency Investigations	6	691	18.1%

Source: Stephan (2009)

# Under-detection

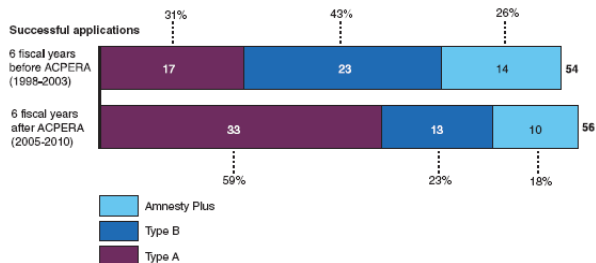
How effective are leniency programs in detecting?

- Antitrust Criminal Penalty Enhancement and Reform Act (ACPERA) of 2004
  - Increased corporate and individual penalties.
  - Increased leniency by reducing damages from treble to single.
- Type A leniency is available only before the DOJ has received any information about the activity being reported from any source.
- Type B leniency is available even after the DOJ has received information about the activity.
- Amnesty Plus is awarded when a firm applies for leniency while being investigated for collusion in another market.
- After ACPERA, the proportion of Type A leniency awards increased significantly.

# Under-detection

How effective are leniency programs in detecting?

**Figure 4: The Number and Percentage of Successful Type A, Type B, and Amnesty Plus Leniency Applications in the 6 Fiscal Years Before and After ACPERA's Enactment**



# Under-deterrence

- Why might CAs not be doing all that they can to promote deterrence?
  - Desistance is observable, deterrence is not.
- How would under-deterrence manifest itself?
  - Smaller penalties closes a case but may weaken deterrence.
  - Being content with prosecuting the cases that are coming to them and not trying to increase the likelihood of a cartel being discovered.
  - Leniency programs weakening non-leniency enforcement.



# Under-deterrence

Are penalties too weak?

- Vitamins case: Hoffman LaRoche
  - DOJ penalty guidelines: US\$1.3 to \$2.6 billion.
  - Actual fine: \$500 million.
- What was behind the penalty decision?
  - Was the DOJ content to have the largest fine in history?
  - Did the DOJ inadequately value deterrence?
  - Was avoiding a court case the proper use of limited DOJ resources?

# Under-deterrence

Is leniency too generous?

- Leniency should be used to increase the penalties paid by the remaining members.
- How much partial leniency is really necessary?
- Is EC giving less in terms of partial leniency?
  - 1999 - Sept 2006: 36% average leniency reduction
  - Oct 2006 - 2009: 18% average leniency reduction
- Is too much given away through plea bargaining in the U.S.?
  - Average reduction is 75%.

# Under-deterrence

## Impact of Leniency Program on Non-leniency Enforcement

Chang and Harrington (2010)

- Cartel birth and death
  - Birth: Firms form a cartel when given the opportunity and collusion is stable.
  - Death: Cartels internally collapse and/or are caught.
- Competition policy
  - Leniency program - optimally used by dying cartels.
  - Fraction of non-leniency cases that are prosecuted (enforcement policy)
  - The bigger is the CA's caseload, the lower is the probability of winning a case.
  - CA chooses enforcement policy to maximize the number of successful cases.

# Under-deterrence

## Impact of Leniency Program on Non-leniency Enforcement

Parameter Cases	Without Leniency Program		With Leniency Program	
	Optimal Enforcement	Cartel Rate	Optimal Enforcement	Cartel Rate
I	50%	.240	90%	.133
II	60%	.203	40%	.101
III	80%	.139	30%	.094
IV	60%	.091	30%	.081
V	50%	.087	20%	.107
VI	40%	.099	20%	.105
VII	40%	.093	20%	.101
VII	40%	.091	20%	.101
VIII	40%	.089	20%	.100

# Under-deterrence

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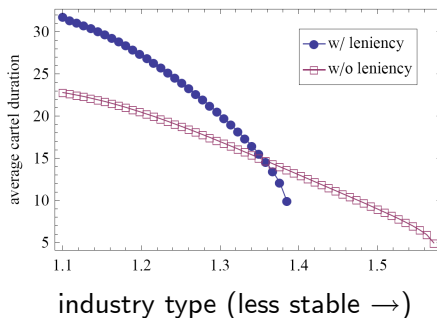
# Under-deterrence

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# Under-deterrence

## Impact of Leniency Program on Non-leniency Enforcement



- Impact of a leniency program on the cartel rate:
  - Less stable cartels no longer form because of the leniency program.
  - More stable cartels have a smaller chance of detection because non-leniency enforcement is weaker.
- Fewer cartels form but they last longer.

# Under-deterrence

## Profitability of Collusion

- Is it unprofitable to form a cartel?
  - Combe and Monnier (2009): "Fines Against Hard Core Cartels in Europe: The Myth of Over Enforcement"
  - Allain, Boyer, Kotchoni, and Ponssard (2011): "The Determination of Optimal Fines in Cartel Cases: The Myth of Underdeterrence"
- Methods for determining the minimum penalty multiple to deter cartel formation.
  - $\Delta\pi$  is the incremental profit from collusion.
  - $\gamma$  is the penalty multiple.
  - Penalty is  $\gamma \times \Delta\pi$ .
  - How high must  $\gamma$  be so as to deter cartel formation?



# Under-deterrence

## Profitability of Collusion

### Static participation approach

- If  $\alpha$  is the probability of being penalized then cartel formation is unprofitable if and only if:

$$(1 - \alpha) \times \Delta\pi + \alpha \times (\Delta\pi - \gamma \times \Delta\pi) < 0 \text{ or } \gamma > \frac{1}{\alpha}.$$

- If  $\alpha = .15$  then deterrence occurs when  $\gamma > 6.67$ .

# Under-deterrence

## Profitability of Collusion

Dynamic incentive approach: Cartel formation is deterred if in any period collusion is not stable.

- Penalty in  $t^{th}$  period of the cartel:

$$F_t = \beta \times F_{t-1} + \gamma \times \Delta\pi, \text{ where } 0 < \beta < 1.$$

- Steady-state penalty:  $\frac{\gamma\Delta\pi}{1-\beta}$ .
- Steady-state collusive value:

$$V = \frac{(\Delta\pi + \pi') + \alpha \frac{\delta\pi'}{1-\delta} - \alpha \frac{\gamma\Delta\pi}{1-\beta}}{1 - \delta(1 - \alpha)}$$

where  $\pi'$  is competitive profit,  $\delta$  is the discount factor.

# Under-deterrence

## Profitability of Collusion

- As penalty is growing, collusion is most difficult in the steady-state.
- Steady-state condition for cartel stability:

$$\frac{(\Delta\pi + \pi') + \alpha \frac{\delta\pi'}{1-\delta} - \alpha \frac{\gamma\Delta\pi}{1-\beta}}{1 - \delta(1 - \alpha)} \geq \pi^d + \frac{\delta\pi'}{1 - \delta} - \alpha \left( \frac{\gamma\Delta\pi}{1 - \beta} \right)$$

where  $\pi^d$  is the profit from deviation.

- This condition does not hold when

$$\gamma > \frac{1 - \beta}{\alpha}.$$

# Under-deterrence

## Profitability of Collusion

Minimum Penalty Multiple for Deterrence

	$\alpha$	0.15	0.10	0.05	0.15	0.10	0.05
	$\beta$	0.95	0.95	0.95	0.85	0.85	0.85
Dynamic	$\frac{1-\beta}{\alpha}$	0.33	0.50	1.00	1.00	1.50	3.00
Static	$\frac{1}{\alpha}$	6.67	10.00	20.00	6.67	10.00	20.00

# Incentive Challenge

## Takeaways

- Competition authorities may be relying too much on leniency programs for discovering cartels
- Competition authorities may be giving too little attention to detecting cartels.
- Competition authorities may be caring about desistance too much relative to deterrence.

# Policy Directions

## Whistleblower Programs

- 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

# Policy Directions

## Whistleblower Programs

Industrial buyers may become suspicious 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.

# Policy Directions

## Whistleblower Programs

Sales representatives of the colluding firms may become suspicious because

- they witness the change in prices.
- they are instructed not to bid for some company's business (as part of a customer allocation scheme).
- they are instructed not to deviate from the price list even when business will be lost.
  - Industrial and medical gases cartel: Sales people were instructed to focus on "implementing the 5% price increase with existing customers and explaining that competitors could be expected to do the same."



# Policy Directions

## Whistleblower Programs

- 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.*

# Policy Directions

## Whistleblower Programs

- 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.*

# Policy Directions

## Whistleblower Programs

- 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.
- Creating a U.S. False Claims Act for Section 1 violations?
  - 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.

# Policy Directions

## Whistleblower Programs

- U.S. General Accountability Report (2011):

*DOJ Antitrust Division officials acknowledge that a whistleblower reward could increase the number of whistleblowers reporting criminal cartel activity to DOJ and, therefore, the number of cartels detected. However, these officials maintain that the potential benefits would be outweighed by the ... disadvantages, most importantly the threat to witness credibility.*

- *Recommendation:* Allow a whistleblower's company to apply for leniency.
  - Enhances an employee's incentive to report.
  - If it induces a leniency application then the whistleblower's credibility is substantiated.

# Policy Directions

## Screening

- *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.

# Policy Directions

## Screening

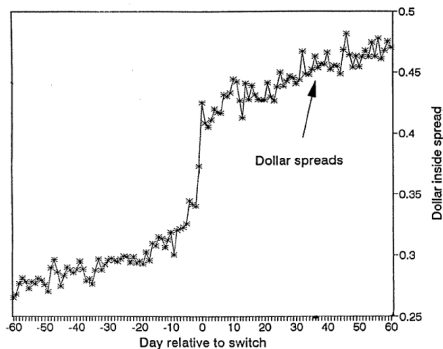
- Why engage in screening when there is a leniency program?
  - Leniency programs may be ineffective when firms are not concerned about being caught.
  - Screening can create those concerns.
  - Identifying an industry for investigation could induce a race among cartel members to apply for leniency.
- 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.

# Policy Directions

## Screening

Can screening work?

- Collusion in Nasdaq markets (W. Christie and P. Schultz, 1999)



# Policy Directions

## Screening

- Collusion in Portuguese bread market
- 30% rise in the price of bread was reported in the press.
- Ministry of the Economy requested the CA to investigate.



Press Release No. 11/2005

- A marked rise in the price of bread leads to detection of an upstream cartel (milling activities)
- Concerted pricing by the undertakings from 2000 to 2004
- A fine of 9 million euros imposed on 10 undertakings



# Policy Directions

## Screening

- *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.

# Policy Directions

## Measurement of Cartel and Enforcement Activity

What is it that we can measure? What data should be collected?

- Characteristics of discovered cartels
  - Number of discovered cartels
  - Cartel duration
  - Manner in which cartel was discovered
    - Leniency program
    - Customer complaint
    - Competitor
    - Whistleblower
    - Other investigation (merger, private suit, etc.)

# Policy Directions

## Measurement of Cartel and Enforcement Activity

- 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?
- Price response
  - Comparison of pre-cartel and cartel price
  - Comparison of cartel and post-cartel price
  - Is price falling after discovery? conviction?

# Summary

- Measurement challenge
  - Need to measure the impact of policy on the cartel rate.
  - Competition authorities should be more concerned with policy evaluation.
- Incentive challenge
  - Under-detection
  - Under-deterrence
- Possible policy directions
  - Whistleblower programs
  - Screening markets for cartels
  - Data collection and analysis