Introduction: Competition Policy

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Motivation

So far we have been focusing on describing and explaining the imperfect competition markets. We have discussed

- what is market power, how it is formed and how it is exerted.
- We compared the outcome that results from firms' interacting and how it affects the social welfare

The goal of the following weeks is to address some positive questions as well: even if firms foresee some of the reaction of the competition authorities, why do they still choose to undertake some actions.

Competition Policy: the postulate

The basic stance we take regarding to competition policy is that competition is desirable as it is a fundamental force to deliver **economic efficiency**.

Neelie Kroes, the European Commissioner for Competition Policy until 2009, defines her role functioning effectively is to ensure competition between companies as

> *My job is about acting as a referee for this process. If we think of the European economy as football match: I set and enforce the rules of the game, in conjunction with the other Commissioners. We make sure it is a fair match, and that there is punishment for people and companies that break the rules and spoil the game for others.*

Different referees act in different jurisdictions

- In the EU, the European Commission is the referee for all competition issues that transcend national borders.
- In the U.S, usually, it is called antitrust issues, the Department of Justice and the Federal Trade Commission act as referees.
- In China, the referees for the anti-monopoly cases is the State Administration for Market Regulation ("SAMR")

Duties of Antitrust Bureau

What types of foul play should the referees watch in the competition game? Neelie Kroes defines her missions as follow:

1. ensure companies do not fix prices or carve up markets.
2. stop mergers and take-overs that restrict competition
3. ensure that companies that do not 'block new companies from succeeding'

Alibaba's Case abuses of dominance [1]

China's antitrust regulator imposed a fine equivalent to $2.8 billion against Alibaba Group Holding Ltd. for abusing its dominant position over rivals and merchants on its e-commerce platforms, a record penalty in the country that comes amid a wave of scrutiny on the business empire of company founder Jack Ma.

Those people said Alibaba also will be required to end a practice that has been dubbed "er xuan yi"—literally, "choose one out of two"—under which, regulators believe, the tech giant punished certain merchants who sold goods both on Alibaba and its rival platforms, including JD.com. The precise remedies Alibaba will have to take likely will be hammered out only after a decision is announced, according to one of the people.

[1] Source: Wall Street Journal,
https://www.wsj.com/articles/china-regulators-plan-to-tame-tech-giant-alibaba-jack-mod=article_relatedinline

Topics in Competition Policy I

In the following weeks, we will discuss the matters one by one, including four topics, *collusive behaviors, horizontal mergers, detterance of entrance and vertical integration.*

- Collusive behaviours, such as price-fixing or market sharing
  - understand how collusive practices emerge and can be sustained over time.
  - investigate how the practices can be detected and fought

Topics in Competition Policy II

- Horizontal mergers
  - A prior is that horizontal mergers tend to decrease welfare as they reduce the number of independent decision-makers on the market.
  - mergers may increase efficiency through synergies(such as cost reductions or elimination of overlapping functions.)
  - Need to access how these two countervailing forces affect the profitability of mergers for the merging parties and the desirability of mergers for the consumers.

Topics in Competition Policy III

If there were no merger control rules, some mergers would cause customers to be denied the choice of goods and services while paying higher prices. When we prohibited Ryanair's acquisition of Aer Lingus in 2007, it was because of the real risk of higher prices for consumers taking 14 million journeys each and every year to and from Ireland. [2]

Topics in Competition Policy IV

- The dominant firm may prevent the entry of the smaller firms. The bundling of products may extend a firms' monopoly power from one market to another

Topics in Competition Policy V

market.

> *Microsoft cannot abuse its Windows monopoly to exclude competitors in other markets. Microsoft can improve its products, but the Court [of First Instance] confirmed that there was no technical benefit to building its media player into its operating system in the way that it did. Consumers did not benefit. Consumers only paid the price through reduced choice and less innovation on the market as a whole. This is an important precedent, not just for this particular product on this particular market.* [3]

Topics in Competition Policy VI

- Exclusion practices
  example includes intermediate products that occupy successive steps in the value chain of some final product or service.

Topics in Competition Policy VII

In 2005 I decided to carry out a detailed sector inquiry under competition rules to understand better why the ongoing drive to more openness in these markets had neither delivered greater choice and cost-reflective prices for consumers nor resulted in anywhere near a truly integrated European energy market. The problems this sector inquiry brought into the spotlight are: first, highly concentrated markets which former incumbent suppliers still dominate; second, vertical foreclosure since companies use their control over the supply pipes and cables to keep rival suppliers out of the market...

Lecture 7: Cartels and Tacit Collusion[1]

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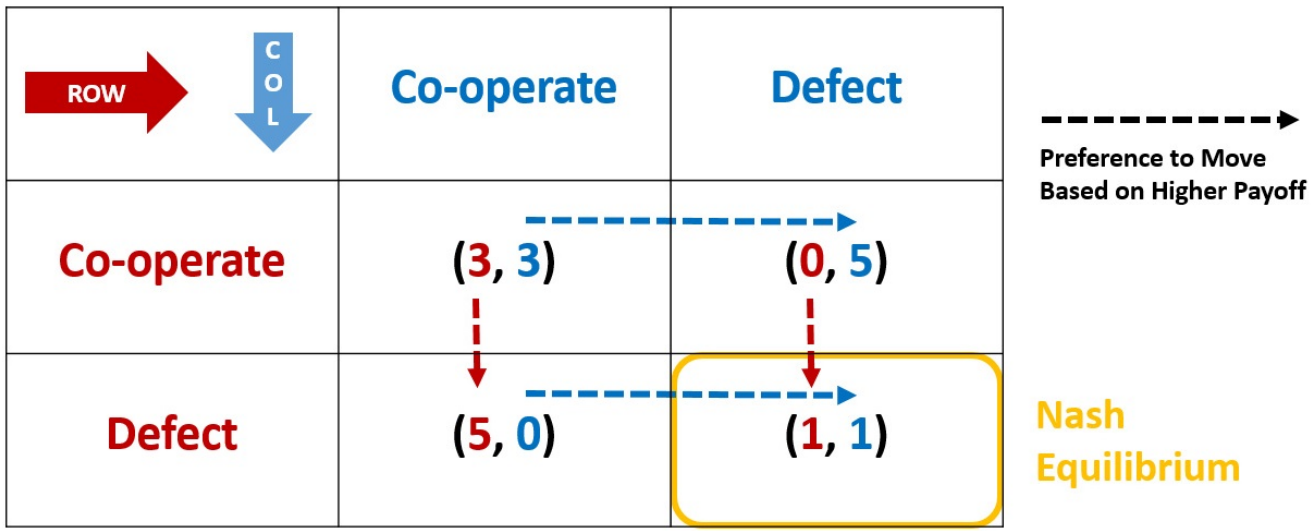
April 16, 2026

[1] The lecture is based on [Belleflamme and Peitz, 2015] Chapter 14.

Motivation

- Collusive (or price-fixing) agreements play an important role in antitrust analysis.
- Questions about cartels:
  - Formation.
  - Sustainability.
- Questions about antitrust:
  - inflexible ”per se” or a ”rule-of-reason” approach?
  - how can antitrust authorities detect collusion?
  - how should they fight it?

Prisoner's Dilemma – Payoff Matrix



Source: studycas.com

Prisoner's Dilemma

- Same structure as in Bertrand competition
  - Cooperate: high price, high profits
  - Defect: low price, low profits
- Key issue: deviation profits, undercutting
- In a static framework: *always* competitive equilibrium.

Infinitely Repeated Prisoner's Dilemma

"Folk Theorem": If games are repeated infinitely (or end of game is sufficiently uncertain) then for sufficiently patient players, any set of feasible pay-offs can be sustained as an equilibrium for some set of beliefs.

Infinitely Repeated Prisoner's Dilemma

"Folk Theorem": If games are repeated infinitely (or end of game is sufficiently uncertain) then for sufficiently patient players, any set of feasible pay-offs can be sustained as an equilibrium for some set of beliefs.

- Note: feasible payoffs are constrained at upper end by jointly collusive payoffs (including monopoly), constrained at lower end by what each player could guarantee himself/herself by acting noncooperatively (alone)—in Bertrand pricing stage game, this lower bound is π=0

Trigger Strategies I

Game: stage game (every period)

- Bertrand pricing
- Homogeneous products
- Constant MC, no capacity constraints
- N symmetric firms

What is the equilibrium to the stage game?

Trigger Strategies II

Now, consider the stage game is infinitely repeated.

Strategy:

- Play P = P^M (monopoly price)
- Belief: if anyone ever "cheats" (P < P^M), everyone reverts to stage game equilibrium (P=MC) forever.

Trigger Strategies III

Let δ be the discount factor (weight today on future profits; patience; value today of $1 next period).

Optimal deviation price: P^M - ϵ

Trigger Strategies IV

Payoffs:

	Payoff Today	Future Payoffs (in PV)
Cooperate	π^M/N	$\delta\pi^M/N + \delta^2\pi^M/N + \ldots$
Cheat	π^M	$\delta \cdot 0 + \delta^2 \cdot 0 + \ldots$

Trigger Strategies V

Therefore, cooperate iif:

$$\pi^M/N + \delta\frac{\pi^M}{N} + \delta^2\frac{\pi^M}{N} + ... \geq \pi^M + 0$$

$$\frac{1}{1-\delta}\frac{\pi^M}{N} \geq \pi^M$$

$$\delta \geq \frac{N-1}{N}$$

Trigger Strategies VI

If $N = 2$, $\delta \geq 1/2$.

Only cooperate if firms are patient enough!

Also, if N grows, cooperation becomes more difficult.

Sustainability of Collusion

Potential of collusion increases with:

1. **Higher** δ (more patience or weight on future payoffs)

Sustainability of Collusion

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   Note: Can't get grimmer than $\pi = 0$ forever. Why? (think about exit option)
   If can't identify cheating perfectly, what are the costs of possible mistake?

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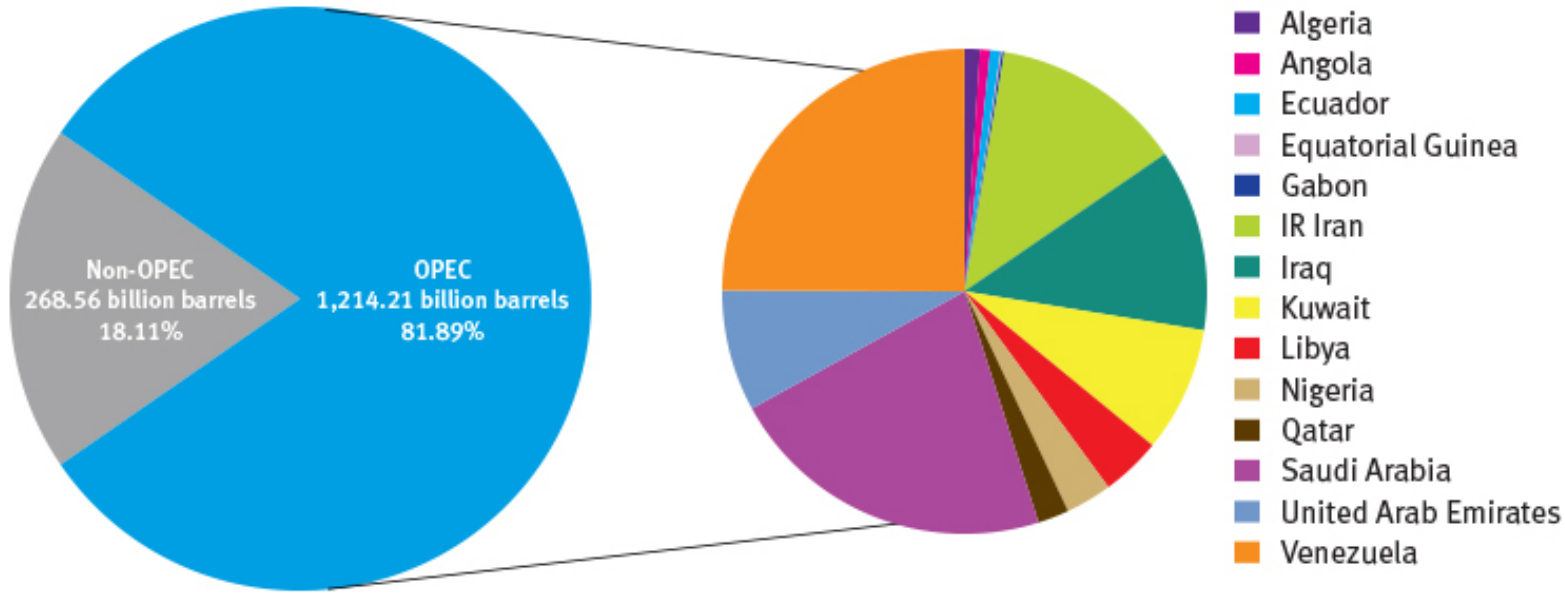
5. **Growing market** over time (increases with t): future cooperation is more valuable, so can sustain more cooperative behavior now.
6. Greater contact across firms in heterogeneous markets. **Multimarket contact** may enable firms to use "slack" in cooperation constraints in one market to enforce

An Example: OPEC

OPEC share of world crude oil reserves, 2017



OPEC proven crude oil reserves , at end 2017 *(billion barrels, OPEC share)*

Venezuela	302,81	24,9%	Kuwait	101,50	8,4%	Qatar	25,24	2,1%	Gabon	2,00	0,2%
Saudi Arabia	266,26	21,9%	UAE	97,80	8,1%	Algeria	12,20	1,0%	Equat. Guinea	1,10	0,1%
IR Iran	155,60	12,8%	Libya	48,36	4,0%	Angola	8,38	0,7%			
Iraq	147,22	12,1%	Nigeria	37,45	3,1%	Ecuador	8,27	0,7%			

Source: OPEC Annual Statistical Bulletin 2018.

Explicit vs. Implicit Collusion

Implicit collusion: Price above competitive levels.

Explicit collusion (cartel): Firms explicitly agree to coordinate their activities (especially P,Q)

What is the difference between the two? Communication, but in both
E[profits from colluding]>E[profits from not colluding]

Explicit vs. Implicit Collusion

Case Study: Kovacic, W. E., Marshall, R. C., Marx, L. M., & Raiff, M. E. (2007). Lessons for Competition Policy from the Vitamins Cartel. In The Political Economy of Antitrust (pp. 149-176). Emerald Group Publishing Limited.

Question: After a cartel is caught, do firms stop colluding?

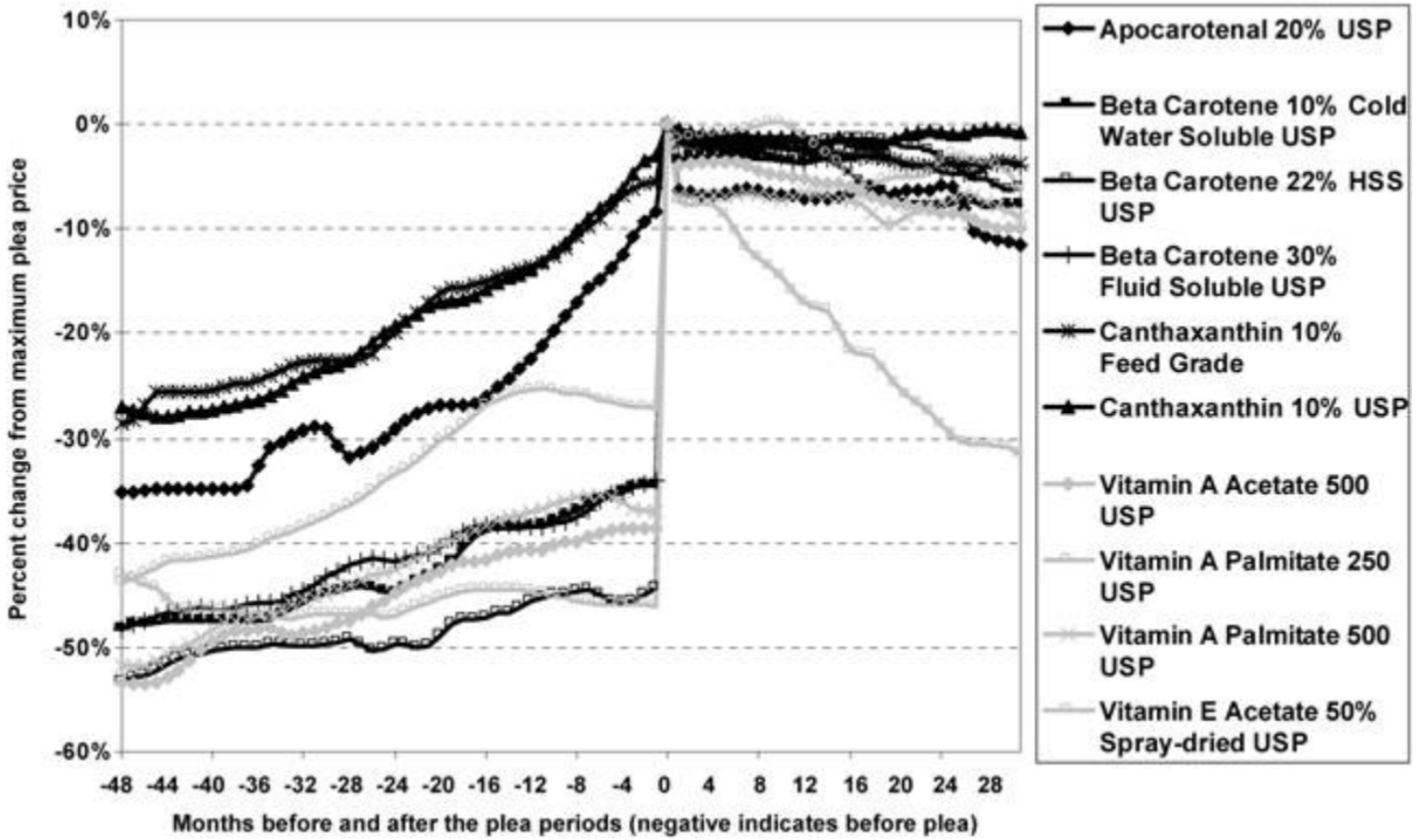


Fig. 6.3: Percentage change in price relative to plea-period maximum by product for products with a two-firm cartel.

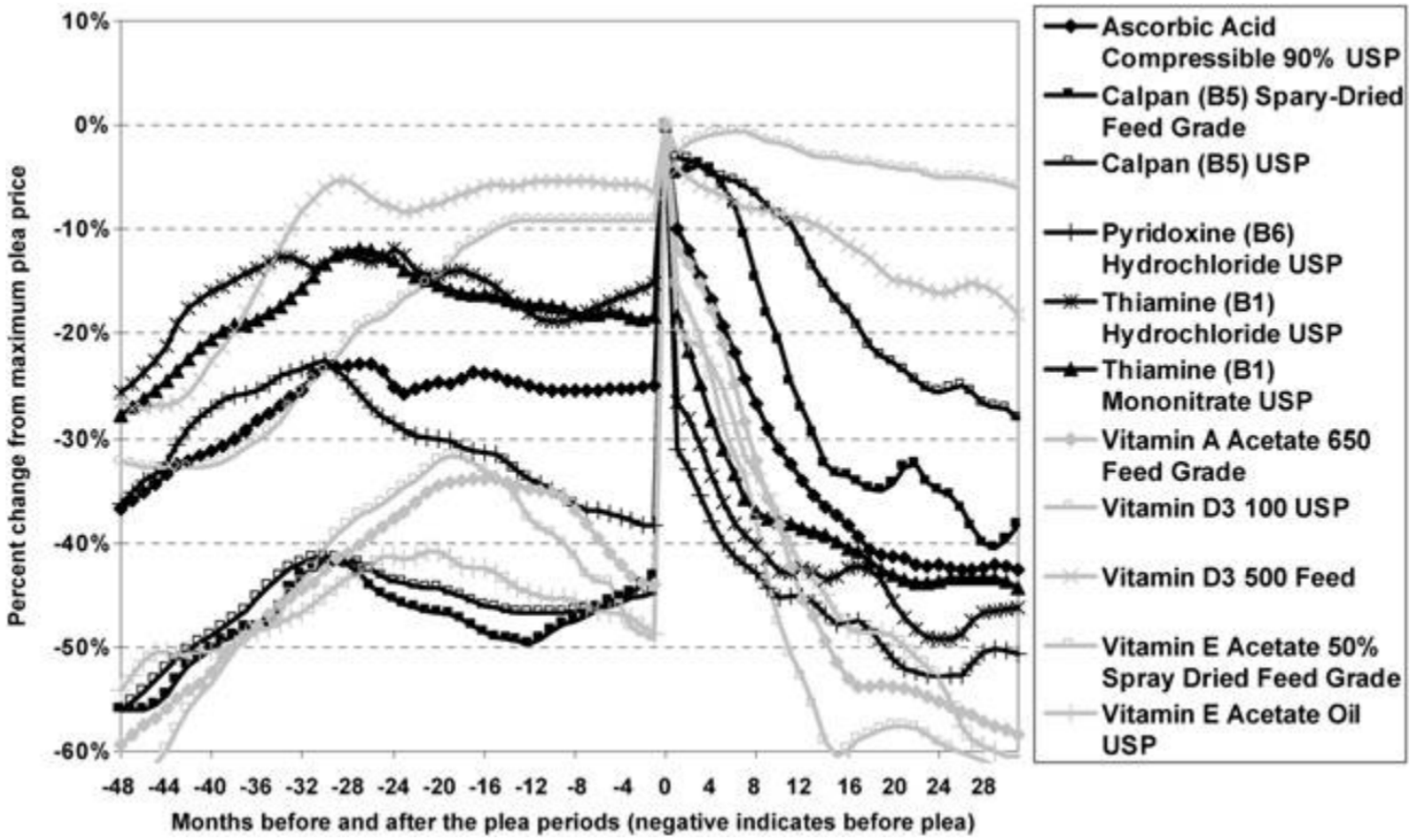


Fig. 6.4: Percentage change in price relative to plea-period maximum by product for products with a three-firm cartel.

Successful Cartel Behavior

Successful coordination of behavior depends upon:

1. Reaching agreement
2. Achieving coordination
3. Maintaining agreement (detection and enforcement)

Tacit collusion requires these to occur without explicit discussion/ agreement

Explicit collusion allows for meeting/discussion, but generally must still be self-enforcing

Achieving coordination

Case Study: Byrne, David P., and Nicolas De Roos. "Learning to coordinate: A study in retail gasoline." American Economic Review 109.2 (2019): 591-619.

Question: How do firms may manage to (tacitly) collude?

Figure 1: Retail Price Cycles

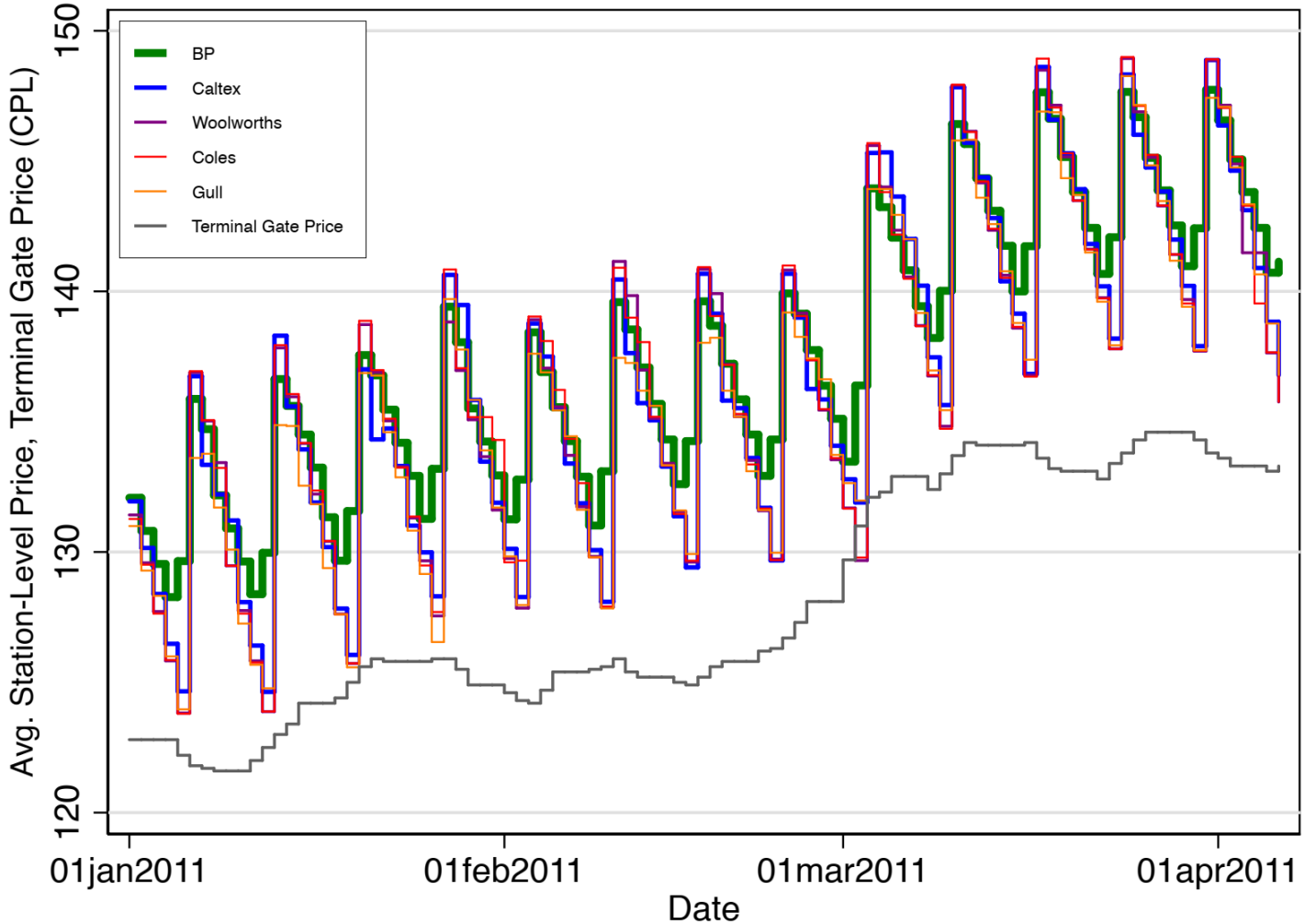
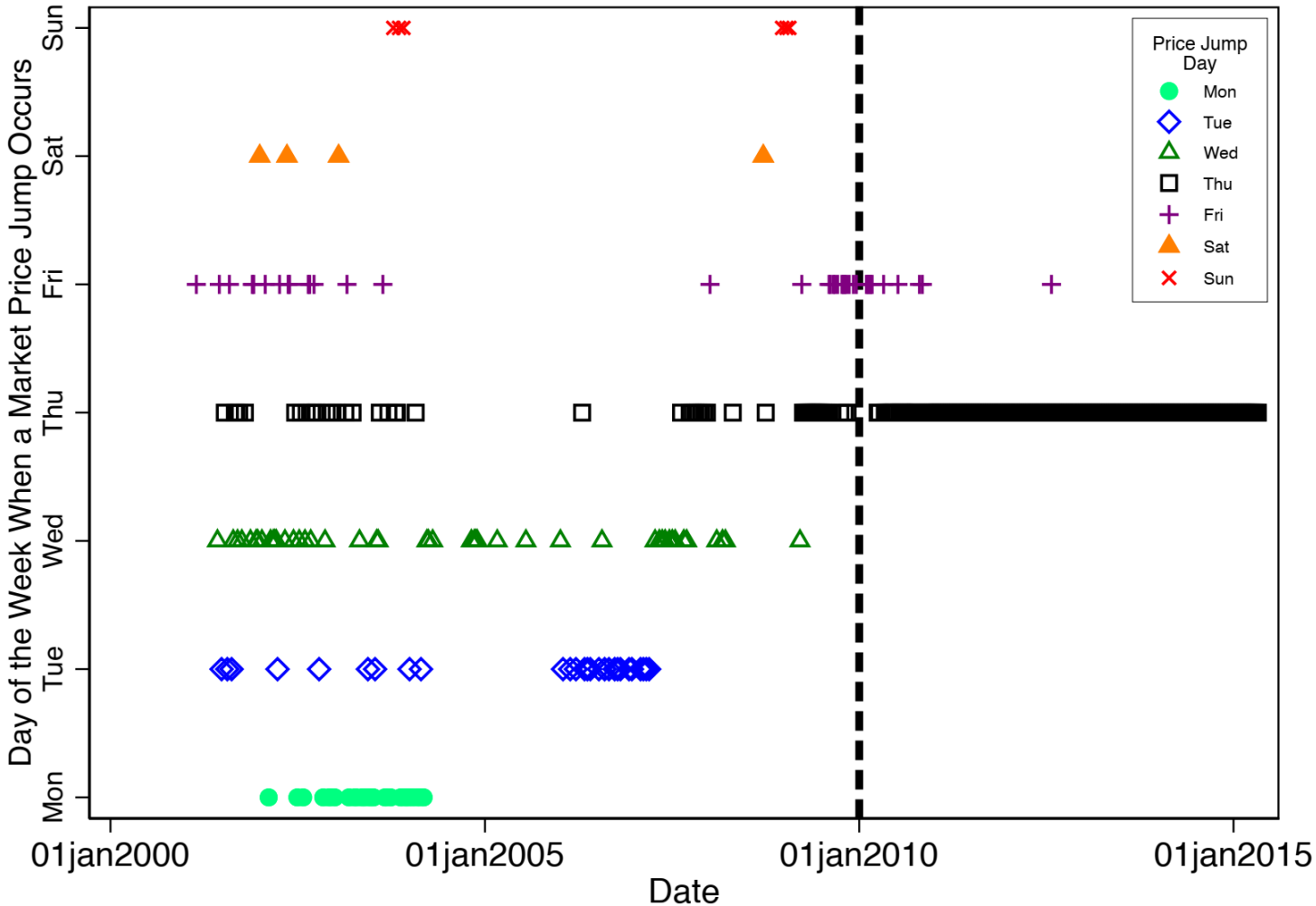


Figure 2: Timing and Magnitude of Price Jumps and Cycle Length

(i) Timing of Market Price Jumps by Day of Week



(ii) Average Station-Level Cycle Length by Firm and Month

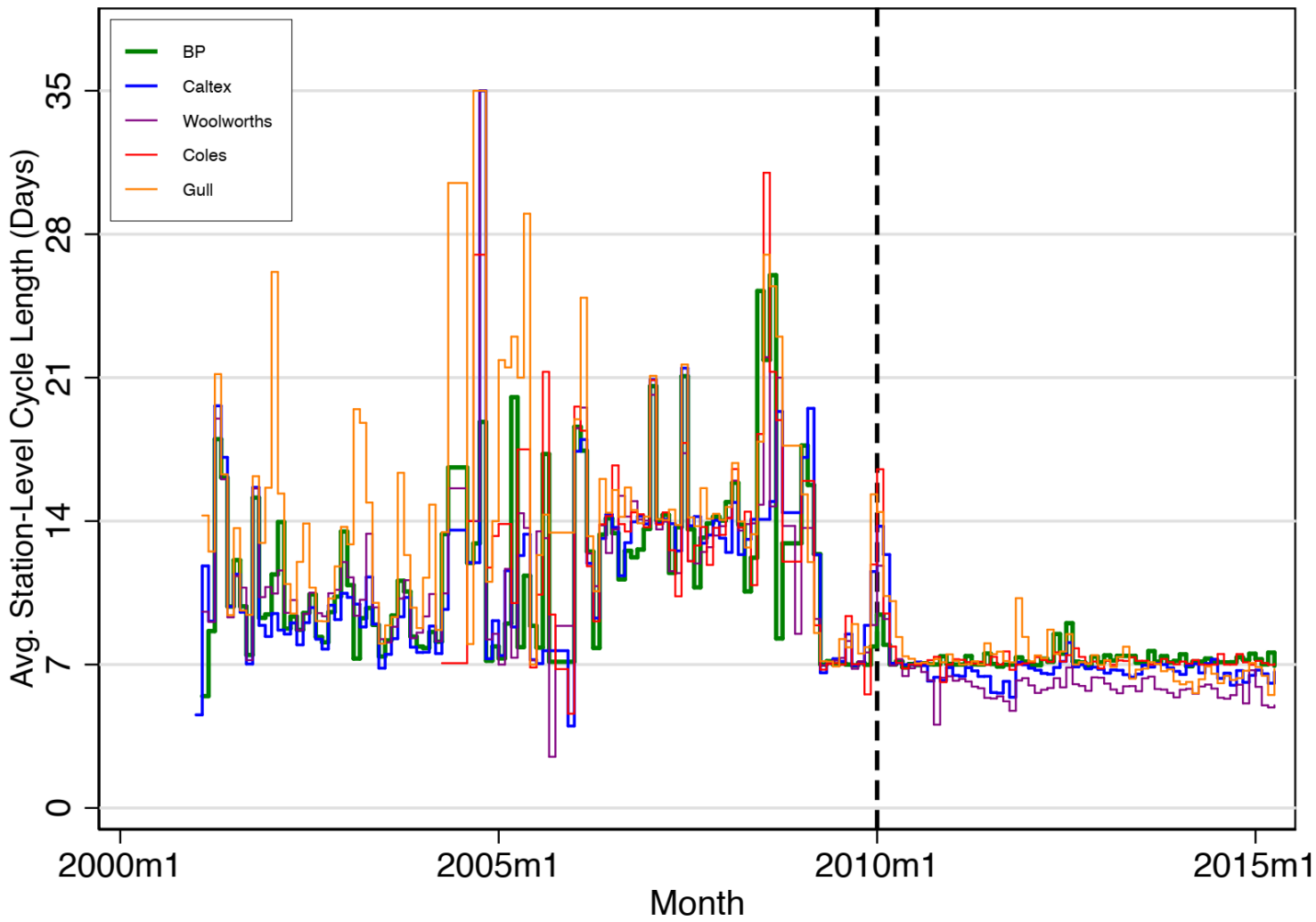


Figure 4: Monthly Retail Prices, Costs, and Margins

(i) Average Station-Level Prices by Firm and Month

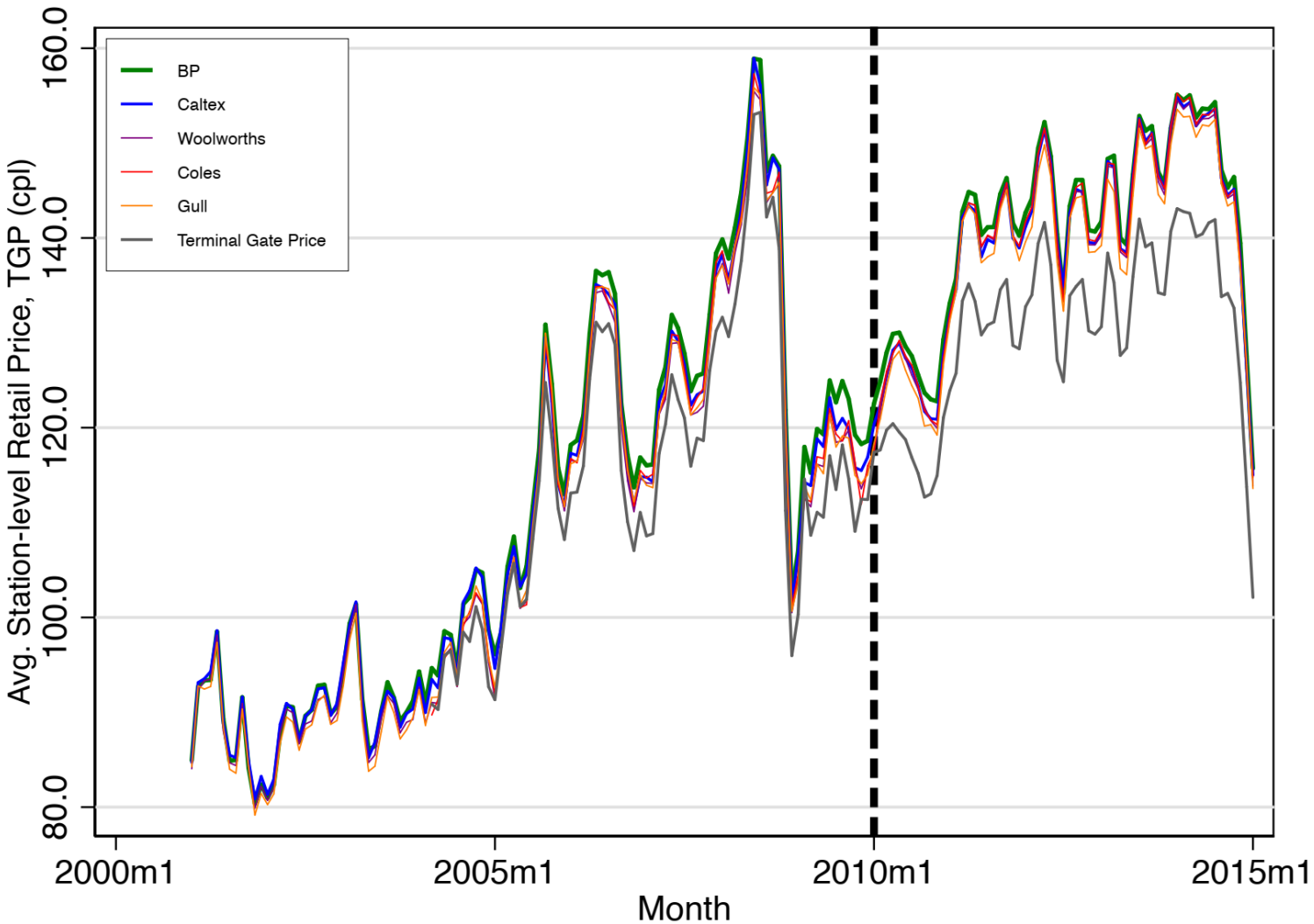
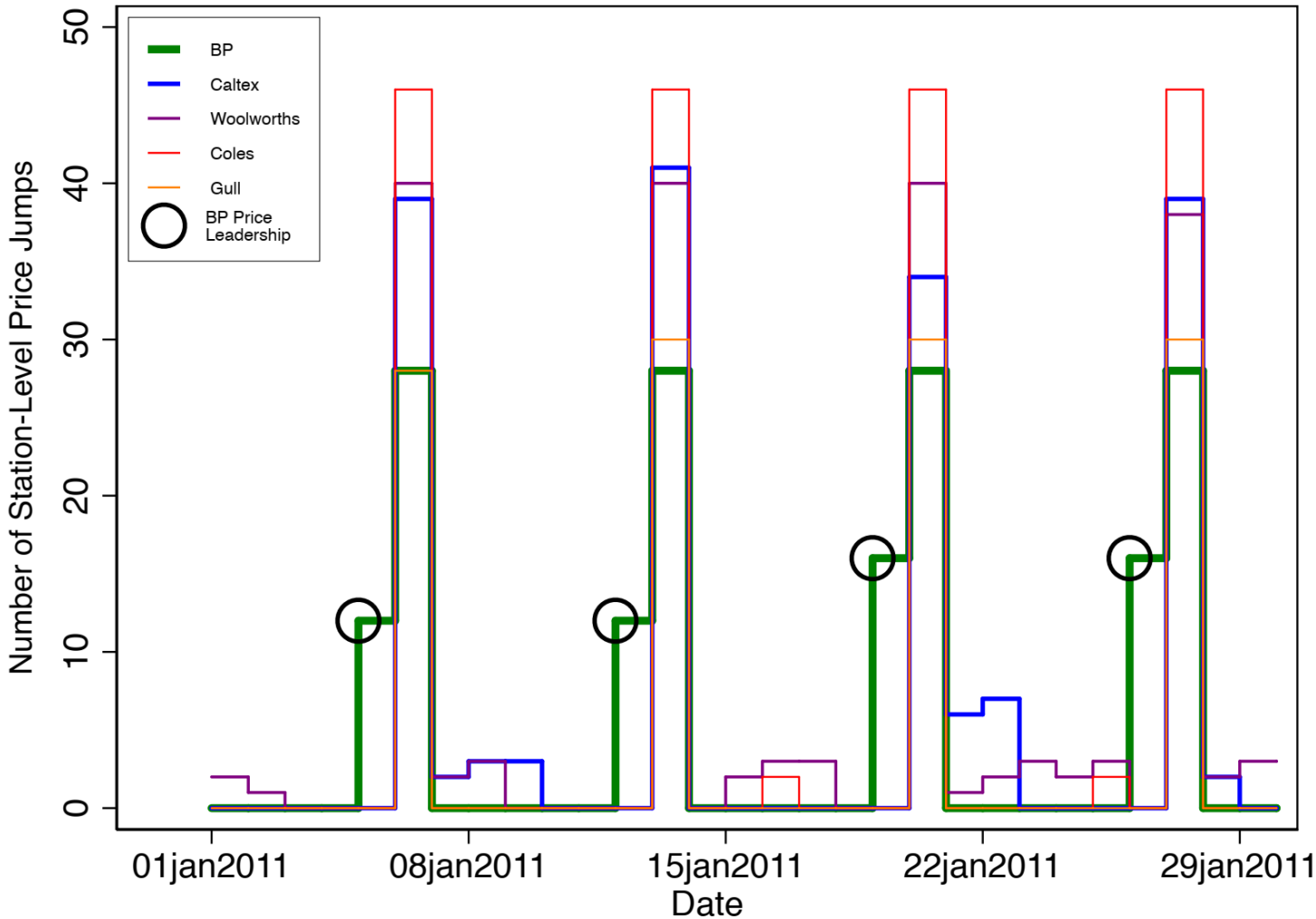


Figure 5: BP Price Leadership in 2011 and 2013

(i) Number of Station-Level Price Jumps by Firm, **Jan 2011**: BP Weds. Price Jump Leadership



Enforcing the agreement

Compliance depends on

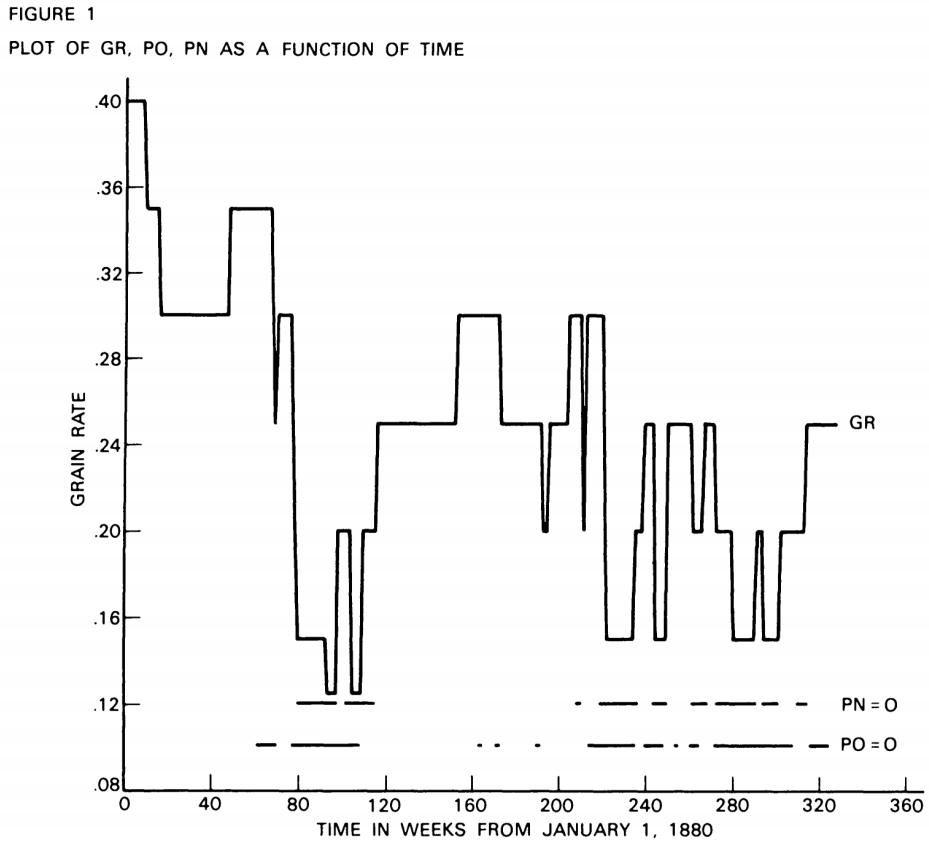
1. Gains from cheating
   - Benefit of cheating at any given moment: Are sales lumpy or smooth? Is demand high or low?
   - Detection lag (how long can you get away with it?)
2. Probability of detection (getting caught)
   - Information quality (signal/noise): Are actions public/observed?
   - Posted prices: MA liquor wholesalers; Danish Competition Council & concrete
   - Information asymmetry
3. Expected punishment if caught by your competitors
   - Severity of expected punishment: Per period loss, duration, discount factor
   - Credibility of threatened punishments
   - Role of multimarket contact (Bernheim and Whinston)

Punishment

Why to punish?

$$\pi^{Col} + \delta\pi^{Col} + \delta^2\pi^{Col} + ... \geq \pi^{Dev} + \delta \text{Punishment}$$

Punishment: Example 1



GR: grain rate; PN and PO: cheating dummies.

Source: Porter, Robert H. "A study of cartel stability: the Joint Executive Committee, 1880-1886." The Bell Journal of Economics (1983): 301-314.

Multi-market contact

In many real-world cases, firms face largely the same competitors in several markets.

- deviation from a collusive outcome more profitable (as firms can deviate on all markets at the same time); but
- makes deviation more costly (as deviators would also be punished on all markets).

Multimarket contact in the US airline industry I

The airline industry appears as an ideal candidate for the empirical testing of the effects of multimarket contact on pricing.

- firms in the airline industry do indeed compete with each other on several markets.
- theory predicts (as we show below) that multimarket contact may facilitate collusion
  - when firms differ in their production costs across markets,
  - when markets themselves differ.

Multimarket contact in the US airline industry II

Cost differences among firms are likely to result from the hub and spoke model, which gives a significant cost advantage to the carrier operating the hub.n As for market differences, one observes significant cross-route differences both in the number of operating firms and the rate at which demand is growing. Finally, based on documented evidence, industry experts have claimed that airlines have long lived by the ”golden rule”, whereby airlines refrain from pricing aggressively in a given route for fear of retaliation in another jointly contested route.
To test the effects of multimarket contact, Evans and Kessides (1994) analyse time-series and cross-sectional

Multimarket contact in the US airline industry III

variability of airline fares in the 1000 largest city-pair routes between 1984 and 1988.
Their estimation of a fixed-effects price equation indicates that multimarket contact has a statistically significant and quantitatively important effect on price: fares are, on average, higher on routes where the competing carriers have extensive interroute contacts.
As an illustration, they estimate that moving from the route in their sample with the 25th percentile in contact to a route with the 75th percentile increases prices by 5.1% (which corresponds to an increase of a round-trip ticket price by almost $13 on the median ticket price in 1988)

Cyclical demand

- Many markets are characterized by demand fluctuations. We therefore extend the single-market analysis by considering two demand states.
- To the extent that there is a co-movement between the industry under consideration and the economy in general, industry demand expands in an economic boom.
- Under demand uncertainty, the critical discount factor above which the fully collusive outcome can be sustained is larger than under demand certainty

Antitrust Policy

1. Cartels (Price Fixing)
2. Mergers
3. Other anticompetitive practices (examples?)

Price Fixing

People of the same trade seldom meet together, even for merriment and diversion, but the conversation ends in a conspiracy against the public, or in some contrivance to raise prices.

Adam Smith, The Wealth of Nations, 1776

Price Fixing

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- Cartel cases are more common than you'd think!
- Understanding competition law Chapter 2 - Cartels: `https://www.youtube.com/watch?v=JO2R4Yort-g`

Note: Some of the slides on price fixing are based on Nancy Rose's MIT class notes.

Antitrust Policy: Price Fixing

Every contract, combination, …or conspiracy… in restraint of trade or commerce…is declared to be illegal.

Sherman Act (1890) Section 1 and case law

U.S. very stringent

- Horizontal price-fixing **per se illegal**: implies no defense for restraint.
- Enforcement through DoJ and FTC, also private cases
  - Civil and criminal penalties; treble damages in private cases. Up to 10 years prison time, $100m corporate fine, $1m individual fine—or as high as twice gain/loss (if higher)

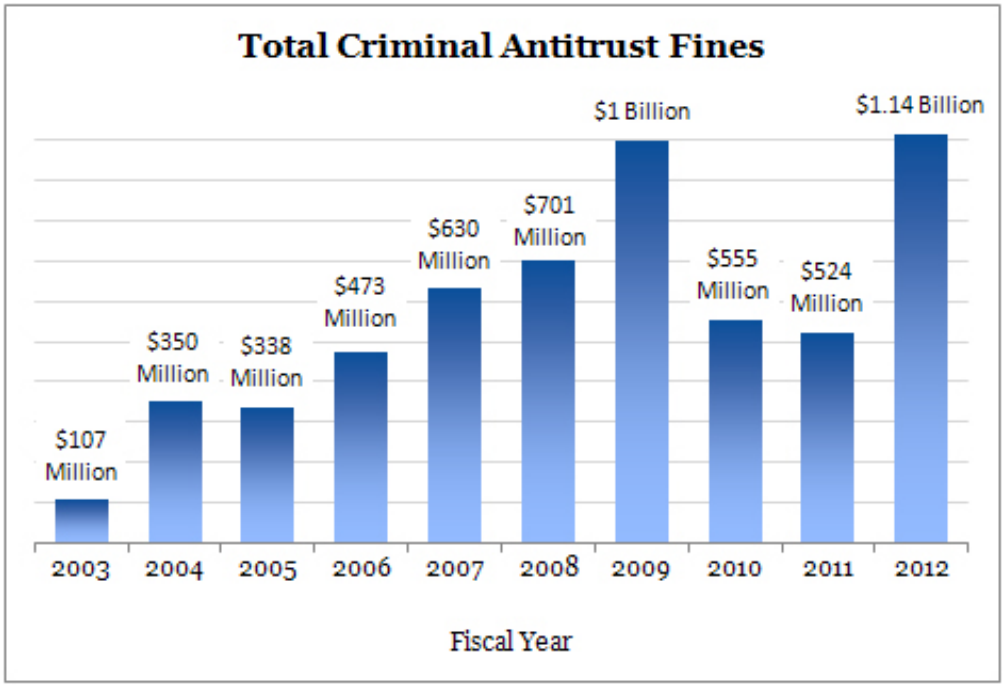
Antitrust Policy: Price Fixing

Most other jurisdictions:

- Apply *rule of reason* test: Is agreement reasonable, considering all evidence and effects? See Article 81 of EC Treaty, for example.
- Have only government enforcement (though some jurisdictions are moving to include private enforcement; see EU discussion of this)
- Used only civil penalties. This is changing: criminal penalties for price-fixing can now be applied in Japan, Canada, UK, France, Germany, Ireland, and Australia and South Africa as of 2009.

Effects of Antitrust

Question: What happens if there is a probability that the cartel is caught (and fined)?



Effects of Antitrust (cont'd)

Cartel's condition with antitrust:
E[profits from colluding]
> E[profits from not colluding] +
E[punishment|caught]*Pr(caught)

Suppose the Competition Authority is watching markets. If firms' profits are too high, it starts investigating. If CA finds a cartel, it gives a fine.

Effects of Antitrust (cont'd)

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E[punishment|caught]*Pr(caught)

Suppose the Competition Authority is watching markets. If firms' profits are too high, it starts investigating. If CA finds a cartel, it gives a fine.

Two effects:

1. A firm colludes only *if it's worth it*: π^{Col} not too small
2. A firm doesn't want to be caught: π^{Col} not too big

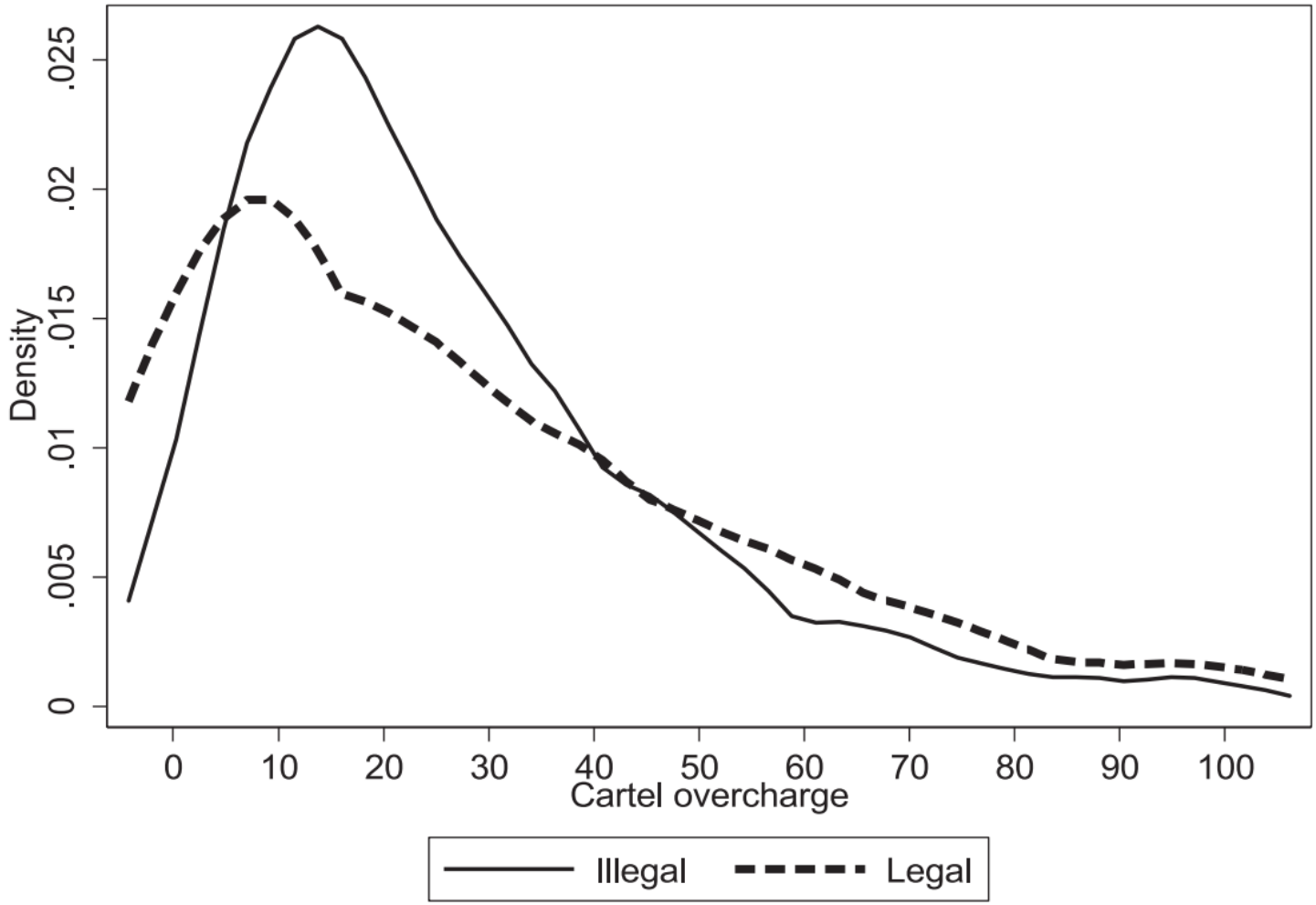

Fig. 2. Density plot of overcharge under illegal and legal regimes.

Source: Bos, I., Davies, S., Harrington Jr, J. E., & Ormosi, P. L. (2018). Does enforcement deter cartels? A tale of two tails. International Journal of Industrial Organization, 59, 372-405.

Leniency Programs

- Leniency programs commit the regulator to the lenient prosecution of early confessors. In particular, it guarantees complete amnesty from federal prosecution to the first confessor from each cartel, provided that an investigation into the confessor's cartel is not already underway.
- If an investigation is already ongoing, it offers discretionary penalty reductions to conspirators that confess.
- Objectives: destabilizing existing cartels, and deterring new cartels.
- Why should they work?

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- Why should they work? $\rightarrow$ Incentives to cheat!

Leniency Programs: Example

Example: EU SYNTHETIC RUBBER CARTEL FINES – After leniency application

Name and location of company	Reduction of fine %	Reduction of fine (euros)	Fine (euros)
Bayer, Germany	100	204M	0
Dow, USA	40	43M	64M
Eni, Italy	0	0	272M
Shell, Netherlands	0	0	161M
Unipetrol, Czech Republic	0	0	18M
Trade-Stomil, Poland	0	0	4M
TOTAL		247M	519M

Leniency Programs (cont'd)

In 1993, the US Department of Justice (DOJ) introduced a leniency program

Leniency Programs (cont'd)

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> *The Antitrust Division's Leniency Program is **its most important investigative tool** for detecting cartel activity. Corporations and individuals who report their cartel activity and cooperate in the Division's investigation of the cartel reported can avoid criminal conviction, fines, and prison sentences if they meet the requirements of the program. (DOJ website, April 2019)*

Understanding competition law - After the raid `https://www.youtube.com/watch?v=Z7WMYJFEZzA`

Leniency Programs (cont'd)

Question: Do they work?

Number of cartels discovered in the US over time.

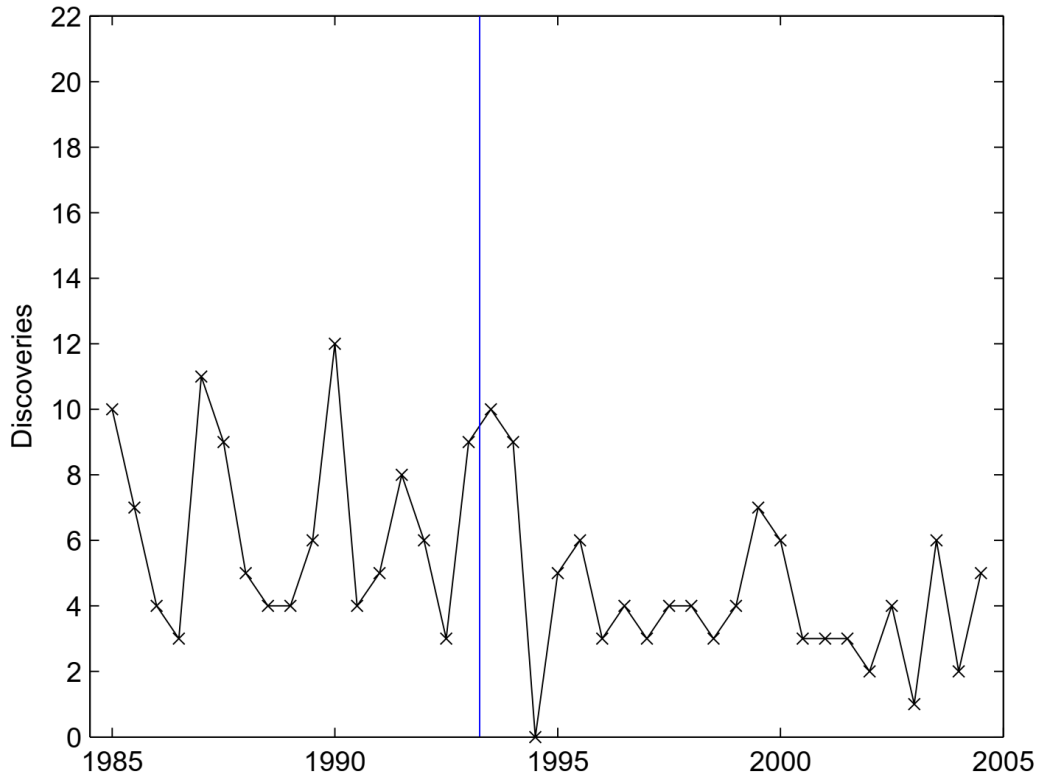
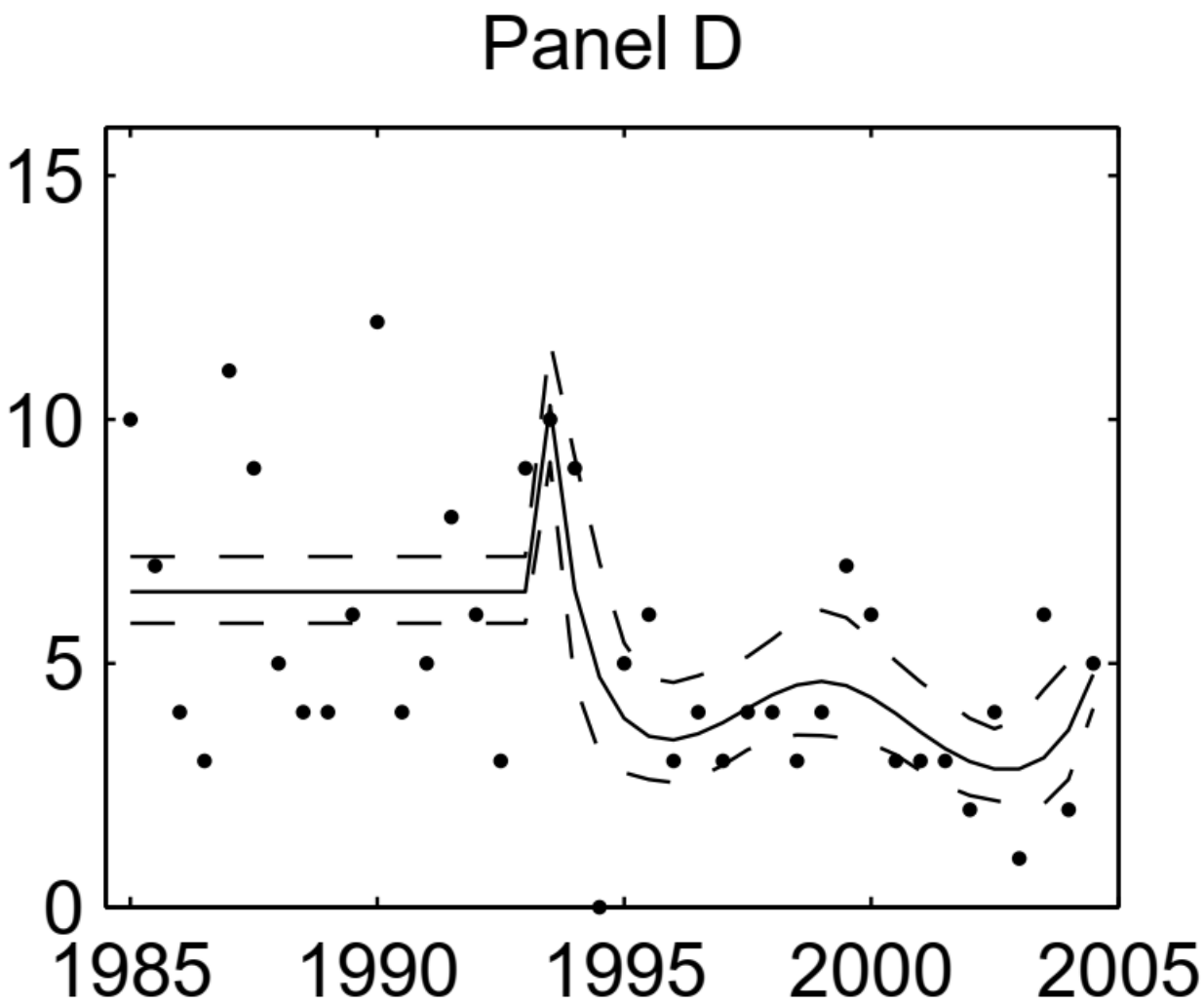


Figure 3: The number of cartel discoveries per six-month period (including only the first cartel per industry). The sample runs from February 10, 1985 to February 9, 2005. The vertical bar marks the introduction of the new leniency program on August 10, 1993.

Source: Miller, Nathan H. "Strategic leniency and cartel enforcement." American Economic Review 99.3 (2009): 750-68.



Source: Miller, Nathan H. ”Strategic leniency and cartel enforcement.” American Economic Review 99.3 (2009): 750-68.

Policy on Tacit Collusion

Price Leadership/ "Tacit Collusion" / "Concertation": Legal standard in US is rule of reason: firms can defend the practice by demonstrating "legitimate business function" of restraint/agreement

- Early cases (e.g. American Tobacco, 1946): similarity of conduct is sufficient to demonstrate conspiracy: "conscious parallelism"
- Now: parallel behavior alone is not sufficient for prosecution (if the behavior is optimal if unilateral).
- Need parallel behavior PLUS some other actions: "conscious parallelism plus" (e.g. Airline Tariff Publishing)

In EU, price leadership also may fall under "Abuse of a dominant position"

Abuse of a Dominant Position - EU

Dominant firm practices more sharply limited than non-dominant firm practices (European Economic Treaty, Article 82), for example,

- charging unreasonably high prices
- pricing too low (undercutting smaller competitors w/artificially low prices)
- tying sale of one product to purchase of another (esp a popular, in-demand product)
- offering special discounts to customers who buy all or most of their supplies from the dominant company

Can issue fines, injunctions, require remediation

The EU generally is harsher on firms in this position than is the US. See Microsoft, Intel cases; Google (search market)

See also Facebook possible fine in the US!

Abuse of a Dominant Position - China

Anti-monopoly Law of the People's Republic of China, Article 18 of the AML and Article 5 of the Interim Provisions on Prohibition of Abuse of Market Dominance (ADP) refer to a position that enables the undertakings to:

- control the price, volume or other trading terms13 in the relevant market; and
- block or affect the ability of other undertakings to enter the relevant market by impeding or delaying other undertakings' entry into the market, or substantially increasing other undertakings' entry costs, such that competitors cannot compete effectively post entry.

References I

Belleflamme, P. and Peitz, M. (2015). *Industrial organization: markets and strategies*. Cambridge University Press.

Lecture 6: Antitrust Policy

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Antitrust Policy

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3. Other anticompetitive practices (examples?)

Road Map

1. Cartel Detection and Antitrust
    - Price fixing
    - Effects of Antitrust
    - Leniency
2. Concentration and Merger Policy
    - Increasing concentration
    - Increasing markups
    - Case study: health insurance
    - Mergers

Cartel Detection and Antitrust

Price Fixing

People of the same trade seldom meet together, even for merriment and diversion, but the conversation ends in a conspiracy against the public, or in some contrivance to raise prices.

Adam Smith, The Wealth of Nations, 1776

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Adam Smith, The Wealth of Nations, 1776

- Cartel cases are more common than you'd think!
- Understanding competition law Chapter 2 - Cartels: `https://www.youtube.com/watch?v=JO2R4Yort-g`

Note: Some of the slides on price fixing are based on Nancy Rose's MIT class notes.

Antitrust Policy: Price Fixing

> *Every contract, combination, ...or conspiracy... in restraint of trade or commerce...is declared to be illegal.*
>
> Sherman Act (1890) Section 1 and case law

U.S. very stringent

- Horizontal price-fixing **per se illegal**: implies no defense for restraint.
- Enforcement through DoJ and FTC, also private cases
  - Civil and criminal penalties; treble damages in private cases. Up to 10 years prison time, $100m corporate fine, $1m individual fine—or as high as twice gain/loss (if higher)

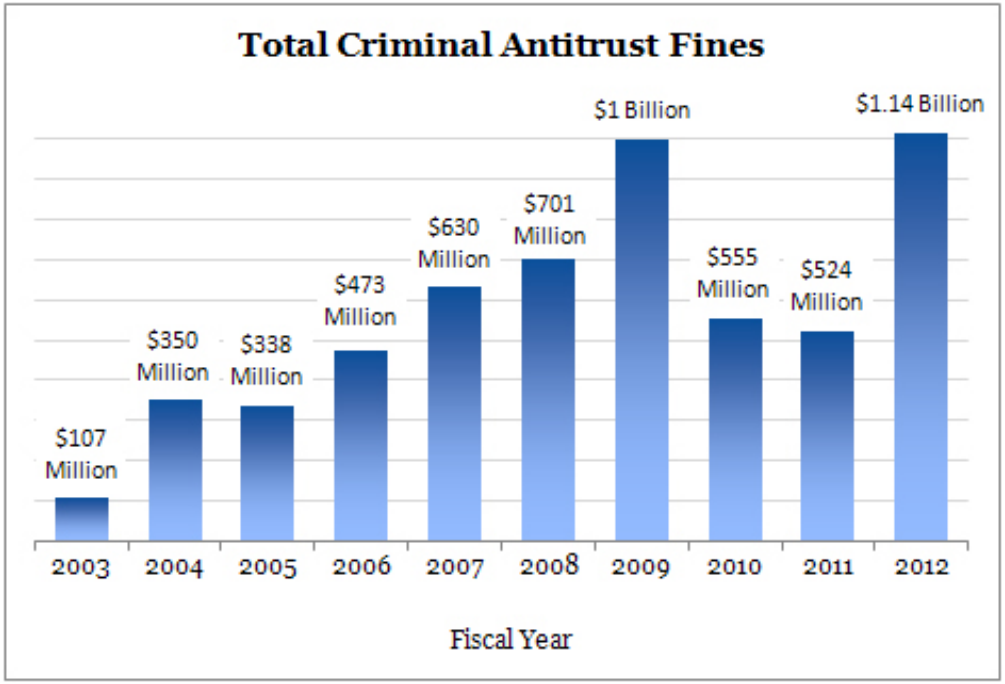
Antitrust Policy: Price Fixing

Most other jurisdictions:

- Apply *rule of reason* test: Is agreement reasonable, considering all evidence and effects? See Article 81 of EC Treaty, for example.
- Have only government enforcement (though some jurisdictions are moving to include private enforcement; see EU discussion of this)
- Used only civil penalties. This is changing: criminal penalties for price-fixing can now be applied in Japan, Canada, UK, France, Germany, Ireland, and Australia and South Africa as of 2009.

Effects of Antitrust

Question: What happens if there is a probability that the cartel is caught (and fined)?



Effects of Antitrust (cont'd)

Cartel's condition with antitrust:
E[profits from colluding]>
E[profits from not colluding] + E[punishment|caught]*Pr(caught)

Suppose the Competition Authority is watching markets. If firms' profits are too high, it starts investigating. If CA finds a cartel, it gives a fine.

Effects of Antitrust (cont'd)

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Suppose the Competition Authority is watching markets. If firms' profits are too high, it starts investigating. If CA finds a cartel, it gives a fine.

Two effects:

1. A firm colludes only *if it's worth it*: π^{Col} not too small
2. A firm doesn't want to be caught: π^{Col} not too big

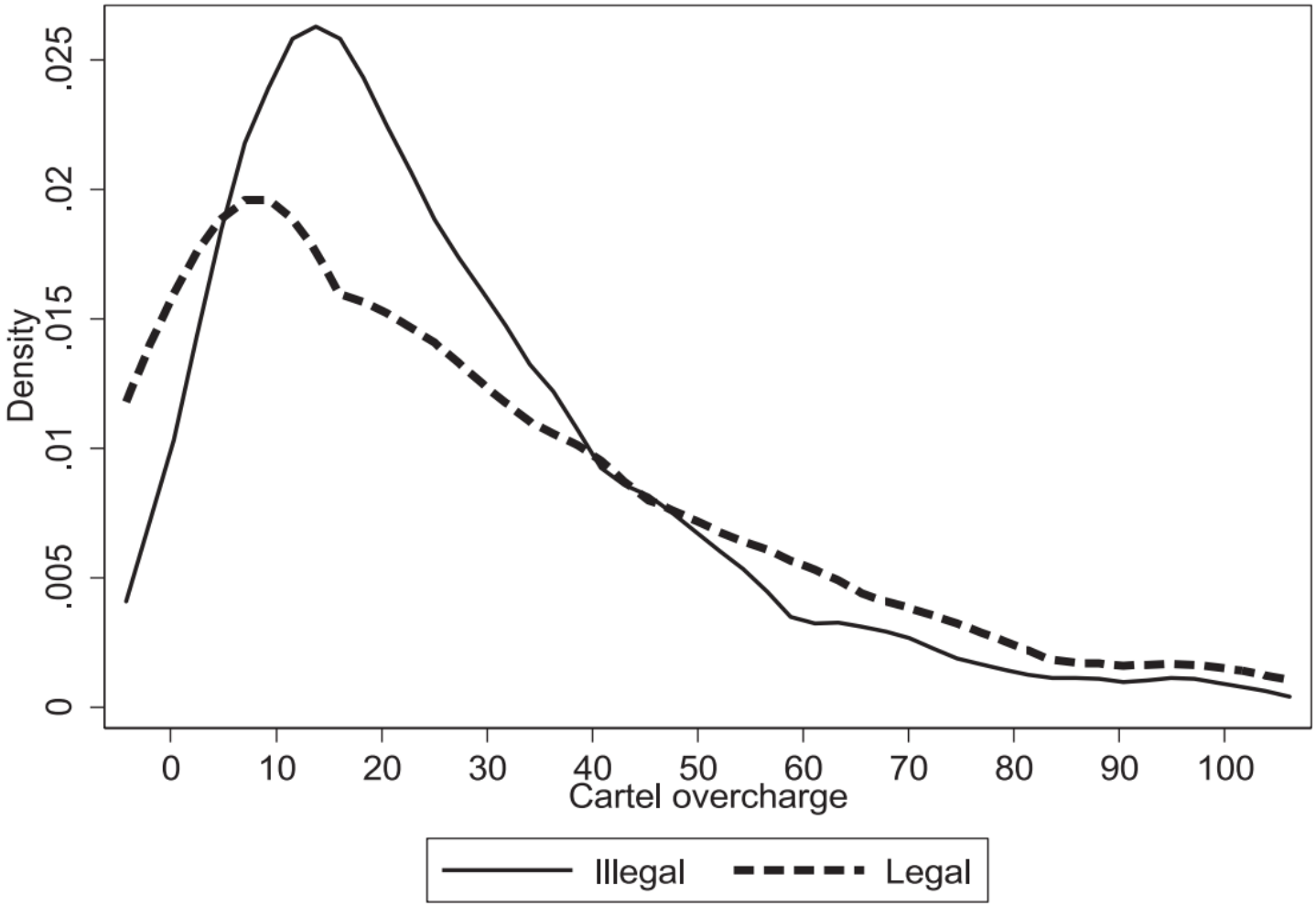

Fig. 2. Density plot of overcharge under illegal and legal regimes.

Source: Bos, I., Davies, S., Harrington Jr, J. E., & Ormosi, P. L. (2018). Does enforcement deter cartels? A tale of two tails. International Journal of Industrial Organization, 59, 372-405.

Leniency Programs

- Leniency programs commit the regulator to the lenient prosecution of early confessors. In particular, it guarantees complete amnesty from federal prosecution to the first confessor from each cartel, provided that an investigation into the confessor's cartel is not already underway.
- If an investigation is already ongoing, it offers discretionary penalty reductions to conspirators that confess.
- Objectives: destabilizing existing cartels, and deterring new cartels.
- Why should they work?

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- Objectives: destabilizing existing cartels, and deterring new cartels.
- Why should they work? $\rightarrow$ Incentives to cheat!

Leniency Programs: Example

Example: EU SYNTHETIC RUBBER CARTEL FINES – After leniency application

Name and location of company	Reduction of fine %	Reduction of fine (euros)	Fine (euros)
Bayer, Germany	100	204M	0
Dow, USA	40	43M	64M
Eni, Italy	0	0	272M
Shell, Netherlands	0	0	161M
Unipetrol, Czech Republic	0	0	18M
Trade-Stomil, Poland	0	0	4M
TOTAL		247M	519M

Leniency Programs (cont'd)

In 1993, the US Department of Justice (DOJ) introduced a leniency program

Leniency Programs (cont'd)

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> *The Antitrust Division's Leniency Program is **its most important investigative tool** for detecting cartel activity. Corporations and individuals who report their cartel activity and cooperate in the Division's investigation of the cartel reported can avoid criminal conviction, fines, and prison sentences if they meet the requirements of the program. (DOJ website, April 2019)*

Understanding competition law - After the raid

`https://www.youtube.com/watch?v=Z7WMYJFEZzA`

Leniency Programs (cont'd)

Question: Do they work?

Number of cartels discovered in the US over time.

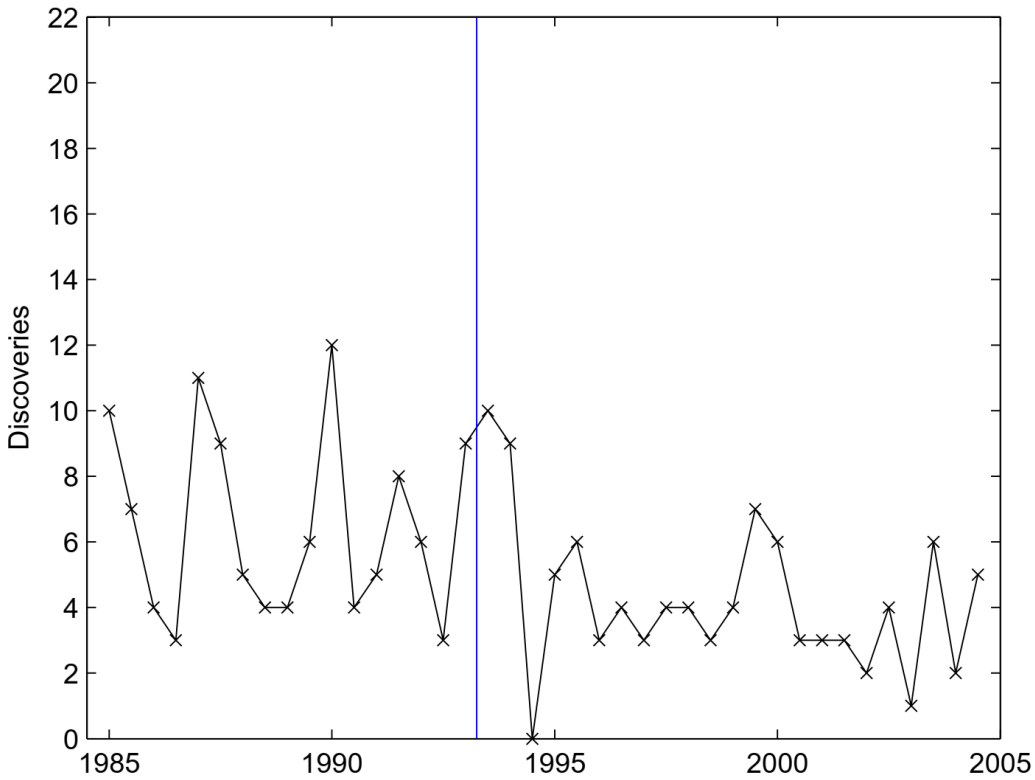
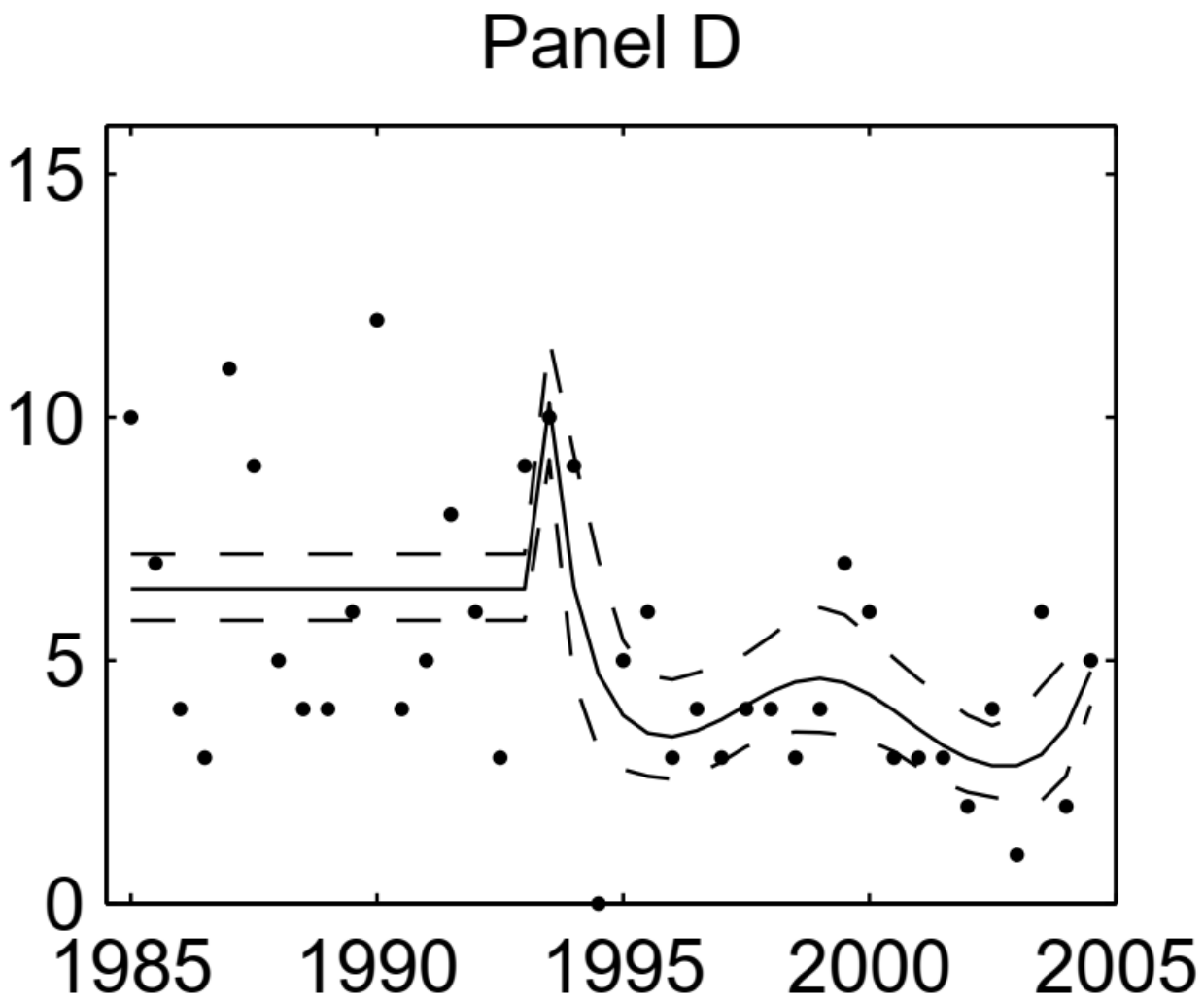


Figure 3: The number of cartel discoveries per six-month period (including only the first cartel per industry). The sample runs from February 10, 1985 to February 9, 2005. The vertical bar marks the introduction of the new leniency program on August 10, 1993.

Source: Miller, Nathan H. "Strategic leniency and cartel enforcement." American Economic Review 99.3 (2009): 750-68.



Source: Miller, Nathan H. ”Strategic leniency and cartel enforcement.” American Economic Review 99.3 (2009): 750-68.

Policy on Tacit Collusion

Price Leadership/ “Tacit Collusion” / “Concertation”: Legal standard in US is rule of reason: firms can defend the practice by demonstrating “legitimate business function” of restraint/agreement

- Early cases (e.g. American Tobacco, 1946): similarity of conduct is sufficient to demonstrate conspiracy: “conscious parallelism”
- Now: parallel behavior alone is not sufficient for prosecution (if the behavior is optimal if unilateral).
- Need parallel behavior PLUS some other actions: “conscious parallelism plus” (e.g. Airline Tariff Publishing)

In EU, price leadership also may fall under “Abuse of a dominant position”

Abuse of a Dominant Position

Dominant firm practices more sharply limited than non-dominant firm practices (European Economic Treaty, Article 82), for example,

- charging unreasonably high prices
- pricing too low (undercutting smaller competitors w/artificially low prices)
- tying sale of one product to purchase of another (esp a popular, in-demand product)
- offering special discounts to customers who buy all or most of their supplies from the dominant company

Can issue fines, injunctions, require remediation

The EU generally is harsher on firms in this position than is the US. See Microsoft, Intel cases; Google (search market)

See also Facebook possible fine in the US!

Concentration and Merger Policy

Increasing industry concentration.

Industry concentration has increased in recent years.

> *Profits are an essential part of capitalism. They give investors a return, encourage innovation and signal where resources should be invested. Their accumulation allows investment in bold new ventures. (...) But high profits across a whole economy can be a sign of sickness. They can signal the existence of firms more adept at siphoning wealth off than creating it afresh, such as those that exploit monopolies. If companies capture more profits than they can spend, it can lead to a shortfall of demand.*
>
> *(...) While concentration does not of itself indicate collusion—America's regulatory environment acts as a barrier, too—it does suggest that America needs a heavy dose of competition.*
>
> *The Economist, March 16, 2016.*

Increasing industry concentration.

Are higher markups bad?

> *Competition* ***is essential for a well-functioning economy****. In the absence of competitive pressure, firms grab market power which in turn allows them to sell goods at* ***higher prices****. Market power naturally leads to* ***redistribution of resources*** *from workers and consumers to the owners of firms: the profit share is higher, while the labor share to workers is lower and the goods are sold at higher prices to consumers. Market power also has welfare effects: due to higher prices,* ***consumption is lower*** *and a suboptimal number of consumers is priced out of the market (Harberger (1954)), and* ***market power stifles innovation and investment*** *(Aghion, Bloom, Blundell, Griffith, and Howitt (2005)).*
>
> *De Loecker, J., Eeckhout, J. (2018). Global Market Power*

Changes in US Firms Markups

"In 1980, average markups start to rise from 21% above marginal cost to 61% now".

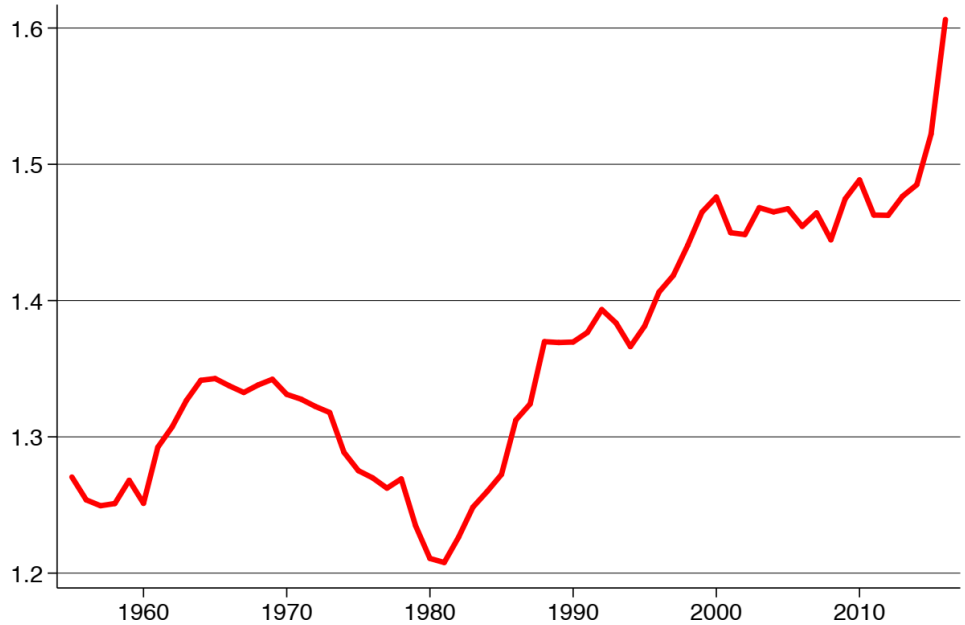
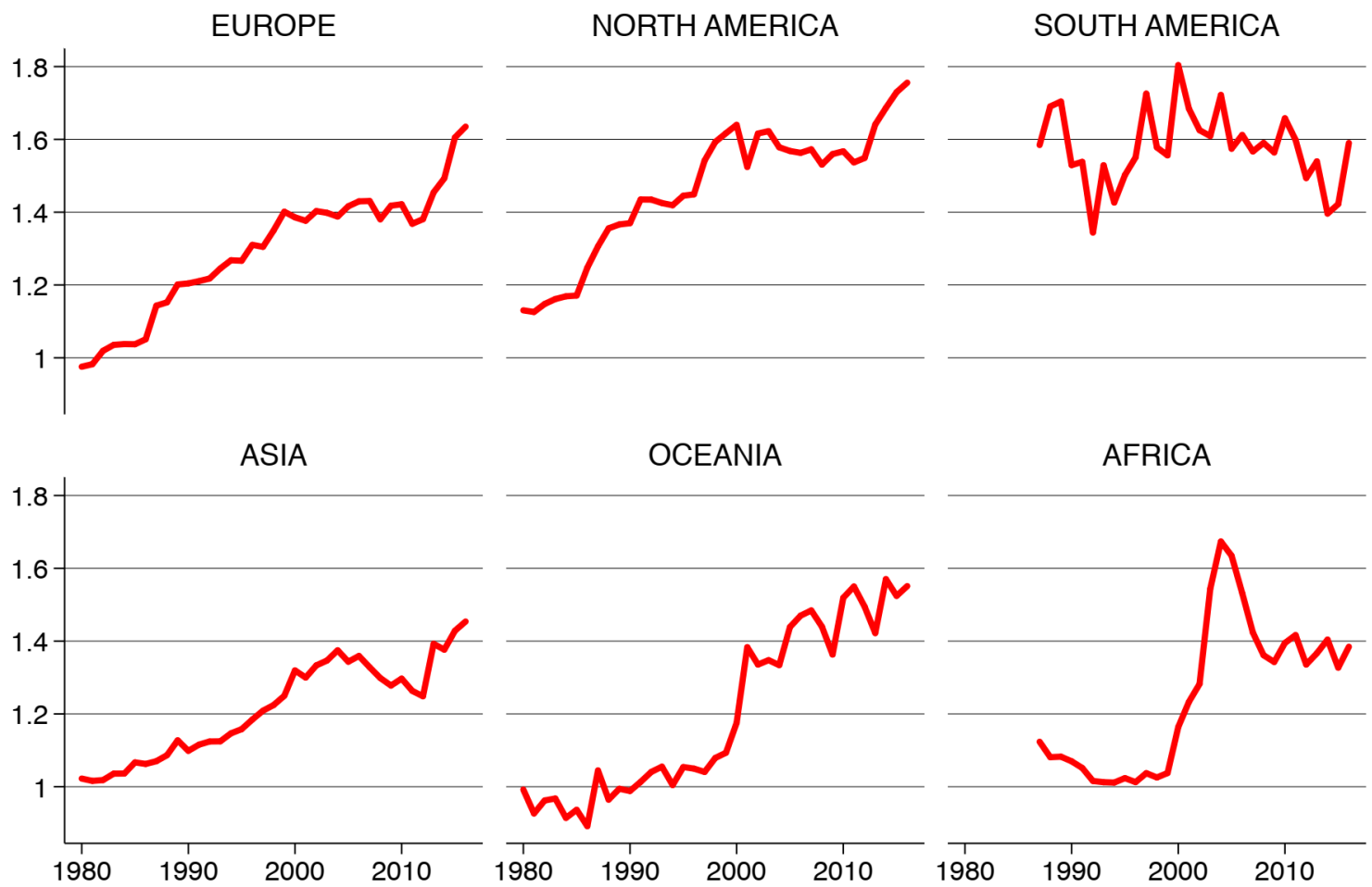


Figure 1: Average Markups for Conventional Production Function. Output elasticities θ_{st} from estimated PF1 are time-varying and sector-specific (2 digit). Average is sales weighted. Evolution 1955-2016.

Source: De Loecker, J., Eeckhout, J., and Unger, G. (2018). The rise of market power and the Macroeconomic Implication.

Changes in Firms Markups Worldwide

The rise in markups is a global phenomenon.

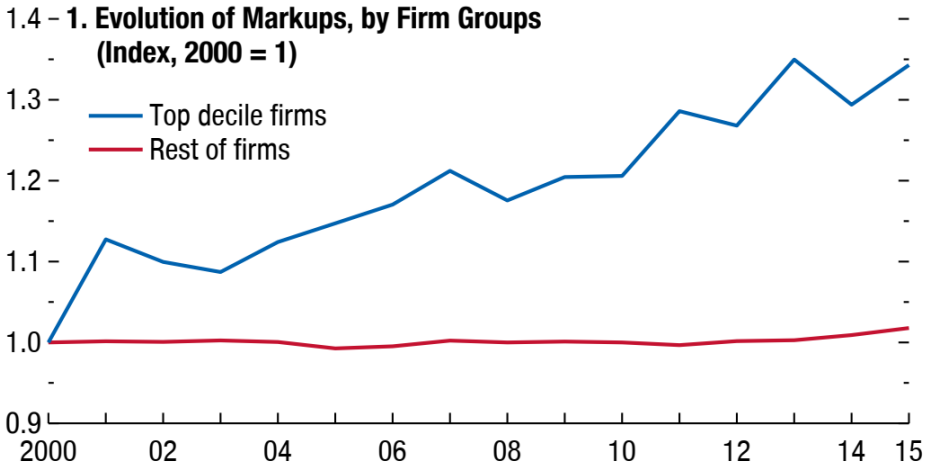


Changes in Firms Markups Worldwide

Yet, the increase is due to a small number of firms.

Figure 2.5. Disconnect between Firms in the Top Decile and the Rest

Markup increases have been largely concentrated in the top 10 percent of the markup distribution; most of these firms are small, but the larger ones account for most of the group's revenue; firms in the top decile tend to be more profitable, more productive, and make relatively more intensive use of intangibles than other firms.



Source: IMF, April 2019.

Concentration in The Health Industry

Case Study: The US Health Insurance Market

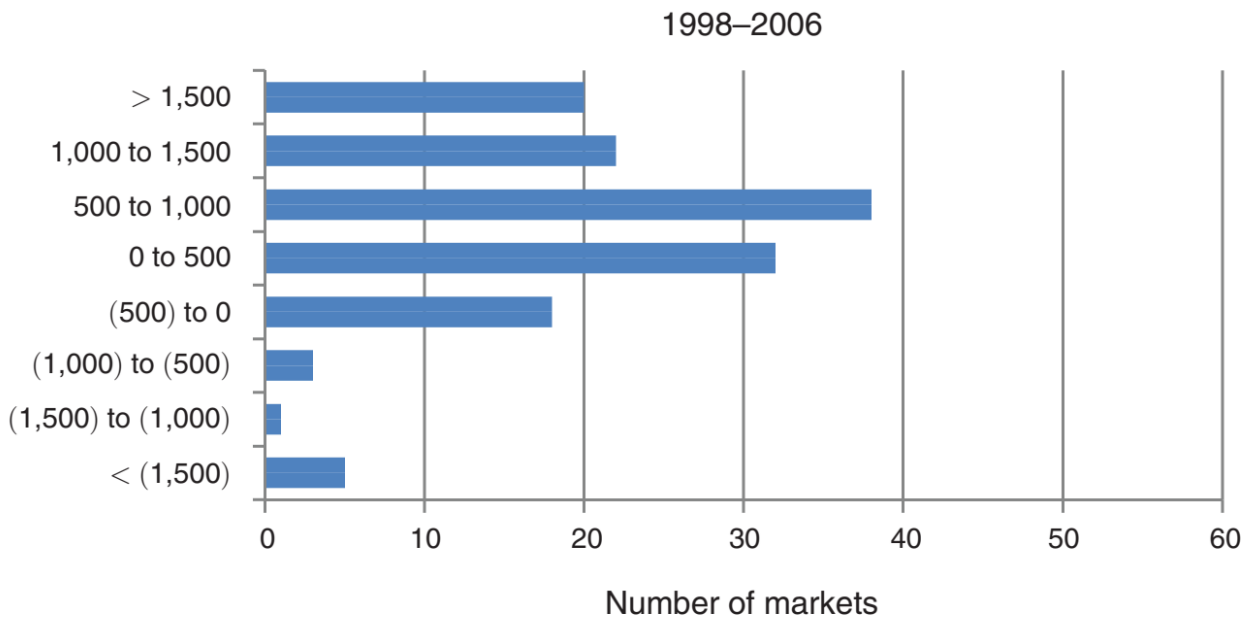


FIGURE 1. CHANGE IN LOCAL MARKET HERFINDAHL

Note: HHI is scaled from 0 to 10,000.

Changes in US Health Insurance Market HHI. Source: Dafny, L., Duggan, M., & Ramanarayanan, S. (2012). Paying a premium on your premium? Consolidation in the US health insurance industry. American Economic Review, 102(2), 1161-85.

TABLE 5—THE IMPACT OF HHI ON PREMIUMS
(*Study Period: 1998–2002*)

	Dep var = lagged HHI	Dep var = annual change in ln(premium)		
	First-stage estimates	Reduced-form estimates	IV estimates	OLS estimates
Sim Δ *HHI* $\times$ (year >= 2001)	0.475***	0.186***		
	(0.014)	(0.050)		
Lagged HHI			0.391***	0.015
			(0.130)	(0.018)
Market-year controls				
Lagged ln(medicare costs per cap)	0.034**	−0.039	−0.052	−0.018
	(0.014)	(0.036)	(0.037)	(0.034)
Lagged unemployment rate	0.204***	0.567***	0.488***	0.474***
	(0.048)	(0.155)	(0.163)	(0.162)
Lagged hospital HHI	−0.060***	0.003	0.026	0.006
	(0.007)	(0.020)	(0.022)	(0.020)
Employer-market controls				
Δ Demographic factor	0.004***	0.323***	0.321***	0.323***
	(0.001)	(0.006)	(0.004)	(0.003)
Δ Fraction of self-insured employees	0.000	0.019***	0.019***	0.019***
	(0.001)	(0.006)	(0.004)	(0.004)
Δ Plan design	0.019*	0.223***	0.216***	0.222***
	(0.010)	(0.040)	(0.028)	(0.027)
Δ Fraction in indemnity plans	0.001	0.089***	0.089***	0.089***
	(0.002)	(0.008)	(0.005)	(0.005)
Δ Fraction in HMO plans	−0.003	−0.081***	−0.080***	−0.081***
	(0.002)	(0.009)	(0.006)	(0.006)
Δ Fraction in PPO plans	0.001	0.000	0.000	0.001
	(0.002)	(0.006)	(0.005)	(0.005)
Observations	28,645	28,645	28,645	28,645

Notes: The unit of observation is the employer-market-year. All specifications include employer, market, and year fixed effects. HHI is scaled from 0 to 1. Standard errors are clustered by market.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

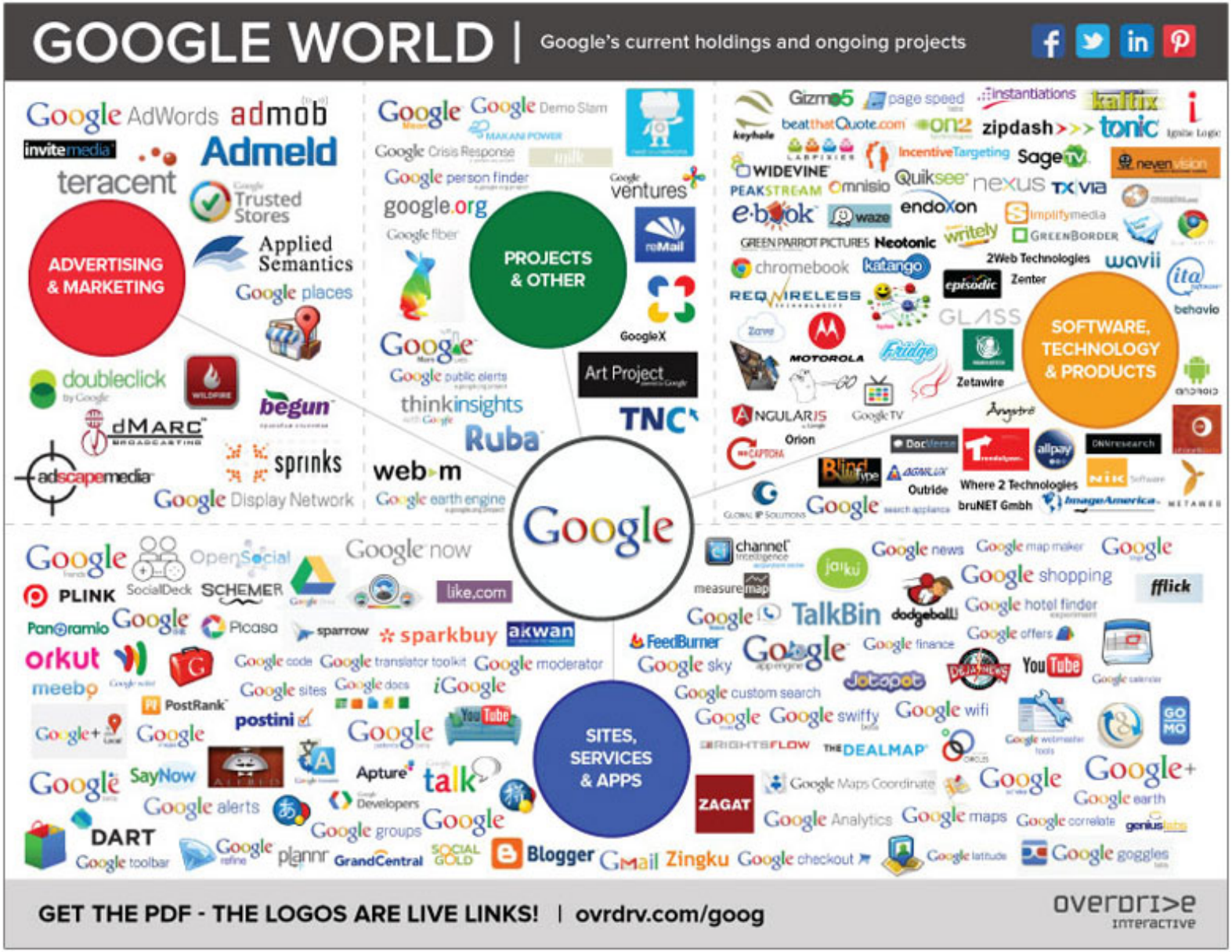
Merger Policy

One of the reasons for increasing concentration in the US has been more lenient merger policy.

- 2001-2018: Google has been buying 1 firm per month, every month, for the past 17 years.

Are mergers bad for competitition?

- Efficiencies
- Market power, etc.
- Also: “Kill” future competitors. Think Facebook-WhatsApp; Google-Waze.



Source: `https://www.ovrdrv.com/google-world-infographic-pdf/`

"Killer Acquisitions"

- Incumbent firms that acquire innovative targets solely to discontinue the target's innovation projects and preempt future competition.
- For example, in pharma, 6% of acquisitions have the objective to terminate development of the target's innovations to eliminate future competitors. (Cunningham, Ma and Ederer, 2019.)

Merger Policy: Hart-Scott-Rodino Act

Merger policy has become less stringent over time.

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Merger policy has become less stringent over time.

> *[The 1976 Hart-Scott-Rodino Act] can be summarized as exempting deals whose target firms have assets under $10 million (and sales under $10 million, in the event the target is engaged in manufacturing). The only major modification of the program came with a December 27, 2000 Amendment to the Act, which can be summarized as additionally exempting transactions valued at less than $50 million, i.e. the "amended threshold." Its effect, however, was dramatic. Premerger notifications fell abruptly by 70%. In short, the competition authorities stopped receiving details about—or warning of—most previously-reported US mergers.*
>
> *Wollmann (2019)*

Merger Policy (cont'd)

The [merger] process exempts mergers below certain size thresholds in an effort to screen out minor deals unlikely to have major effects on market structure, but when industries are highly segmented, this can result in stealth consolidation: anticompetitive deals whose individual size enables them to escape regulatory scrutiny but whose cumulative effect is large.

Wollmann (2019)

Number of merger notifications

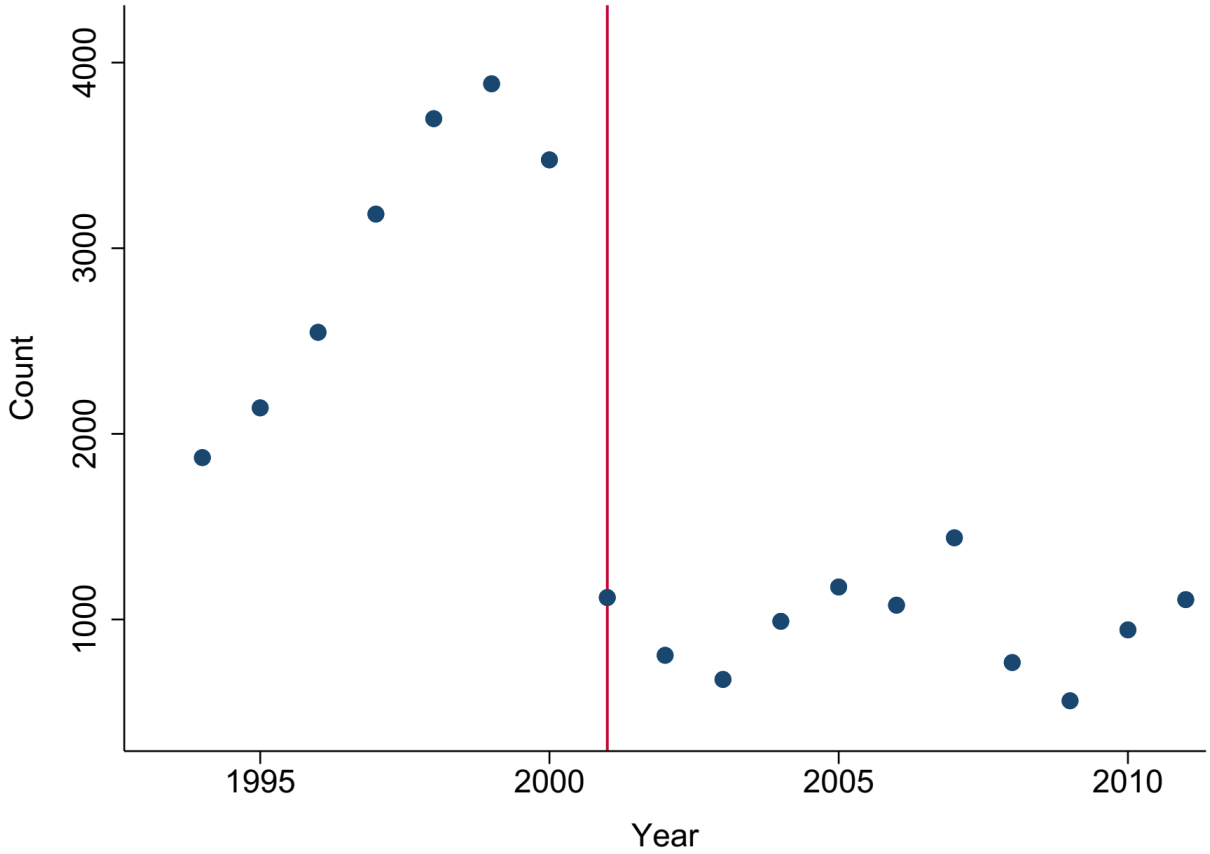

Figure I: *Notifications drop sharply when the Amendment takes effect.*

This graph plots the number of transactions for which premerger notifications were filed in the US over time. Filings are required pursuant to the Hart-Scott-Rodino Antitrust Improvements Act and reviewed by the Department of Justice and Federal Trade Commission. A vertical line marks 2001, the year the Act was amended to exempt deals valued at less than $50 million.

Source: Wollmann, T. Stealth Consolidation: Evidence from an Amendment to the Hart-Scott-Rodino Act, forthcoming,

Number of mergers

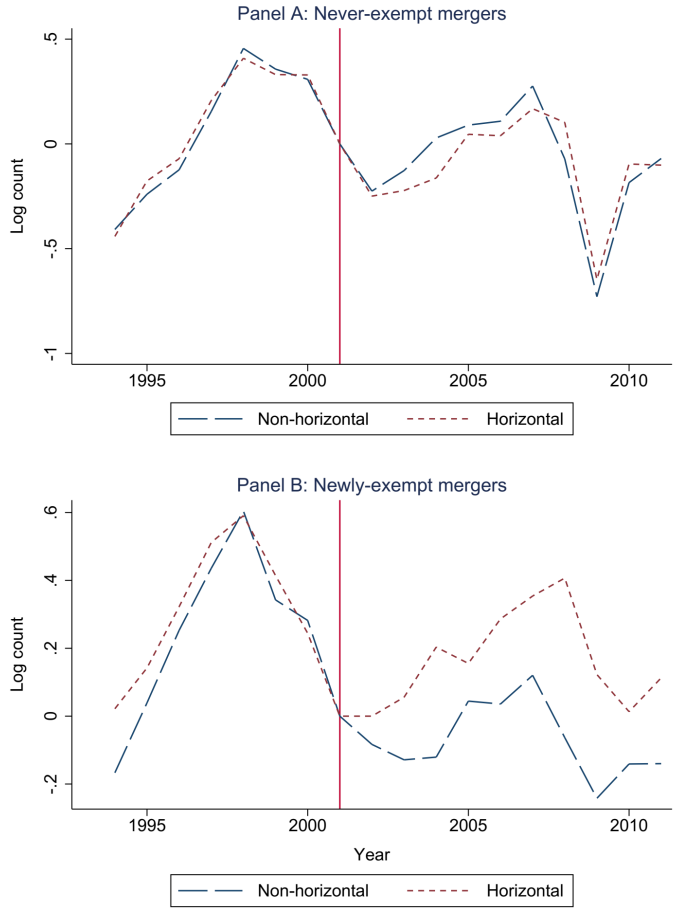

Figure III: *Newly-exempt horizontal mergers increase following the Amendment.*

These graphs plot the log of the number of horizontal and non-horizontal mergers over time. The top panel is based on never-exempt mergers, while the bottom panel is based on newly-exempt mergers. In both, a vertical line marks 2001, the year the Act was amended to raise the size-of-transactions threshold. To facilitate comparisons, all plotted values are reduced by the value they take in that year (so that the lines that connect them intersect $y = 0$ in 2001).

Source: Wollmann, T. Stealth Consolidation: Evidence from an Amendment to the Hart-Scott-Rodino Act, forthcoming, American Economic Review: Insights. Manuscript, July 2018.