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Cartels

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Cartels

- Oligopolistic competition
 - Lower prices and profits
- Q: Why not cooperate instead?
 - Common price policy
 - Share the market
- A: Not feasible
 - Incentive to cheat
 - Agreement not enforced by courts

Cartels

- But, cartels do exist
 - Example 1: Lysine cartel
 - YouTube – Cartel meetings where filmed by the FBI
 - Movie “The Informant” with Matt Damon
 - Example 2: Swedish market for generic drugs?

Generic drugs

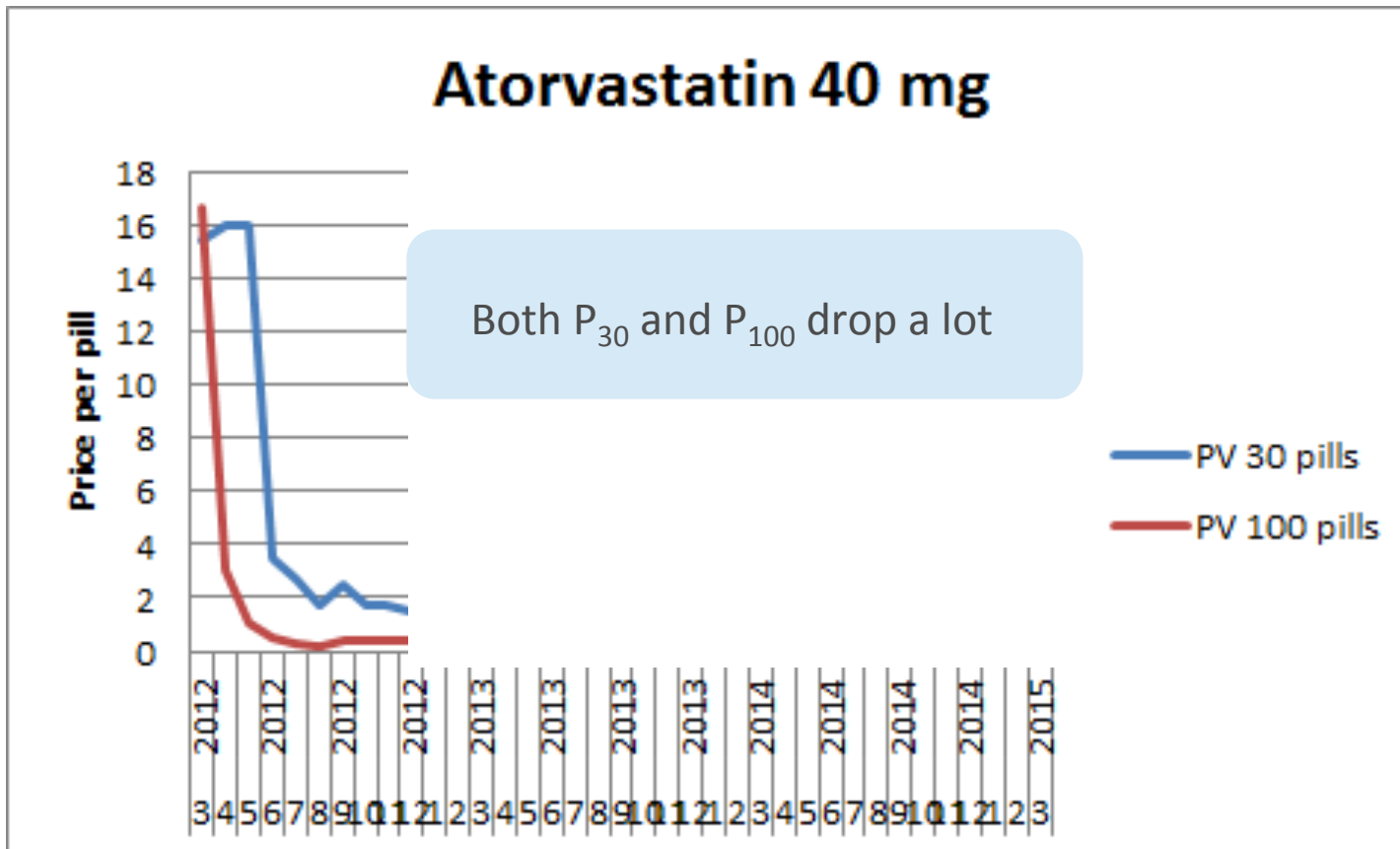
- National auction
 - All drugs without patent
 - Every month
- Idea
 - Lowest price = “product of the month”
 - Large market share
 - Recommended
 - Subsidy does not cover “over-charge”
- But
 - Also “brand name” usually gets market share

Generic drugs

- Example: Atorvastatin
 - Reduces cholesterol
 - Patent expired in 2012
 - Sold in different package sizes, e.g.:
 - 100-pills: large market => many competitors
 - 30-pills: smaller market => fewer competitors

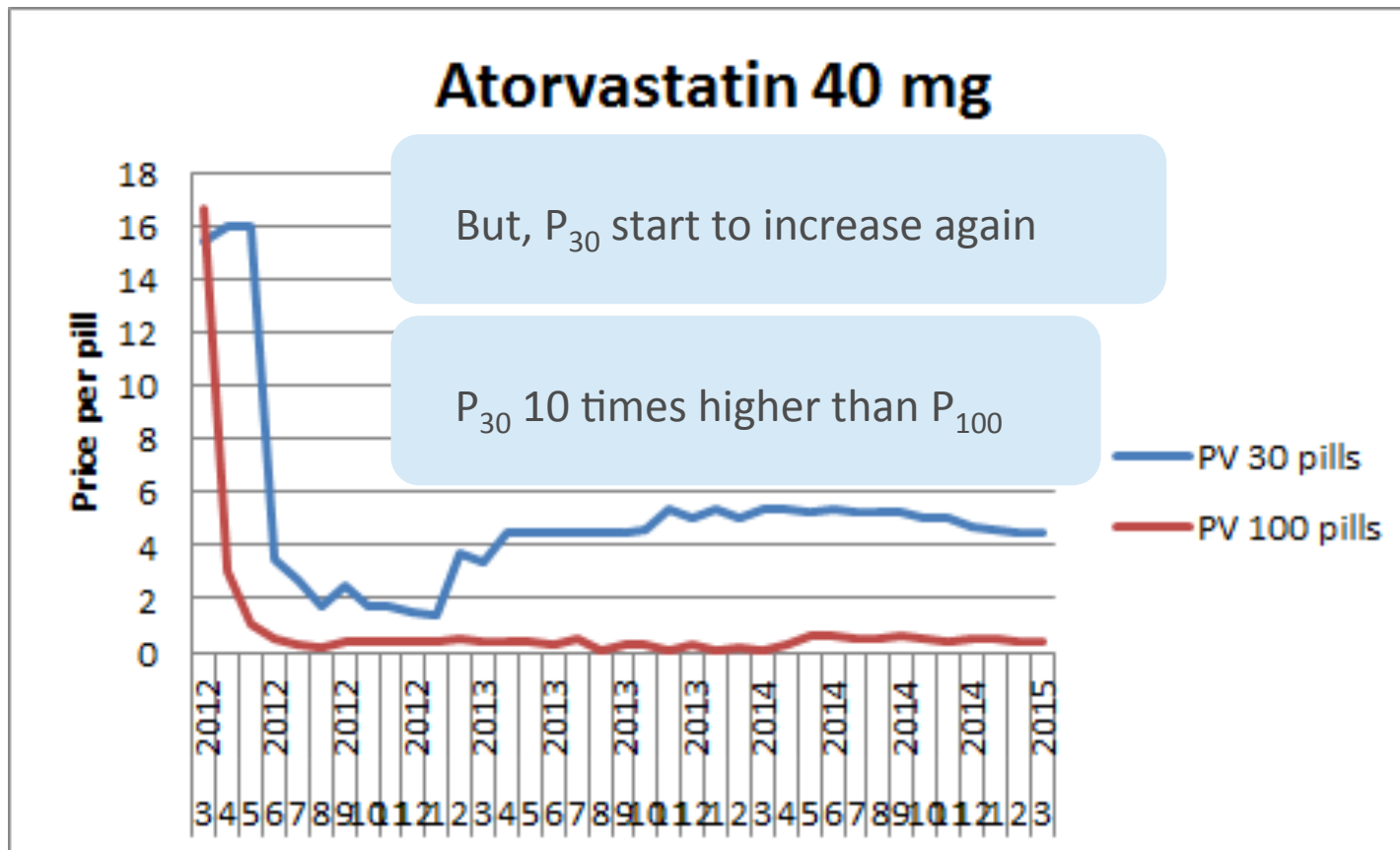
Generic drugs

Price of the product of the month

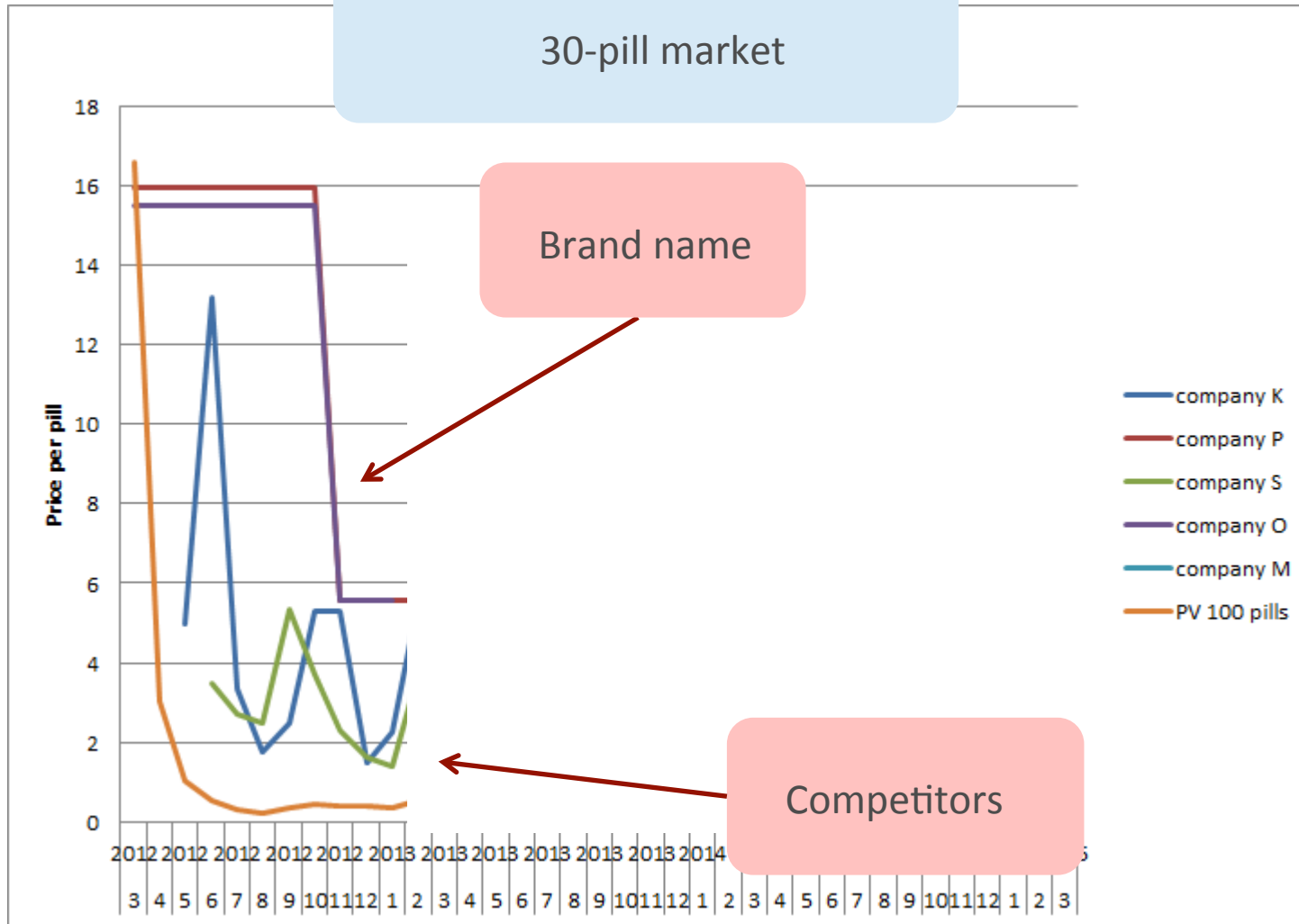


Generic drugs

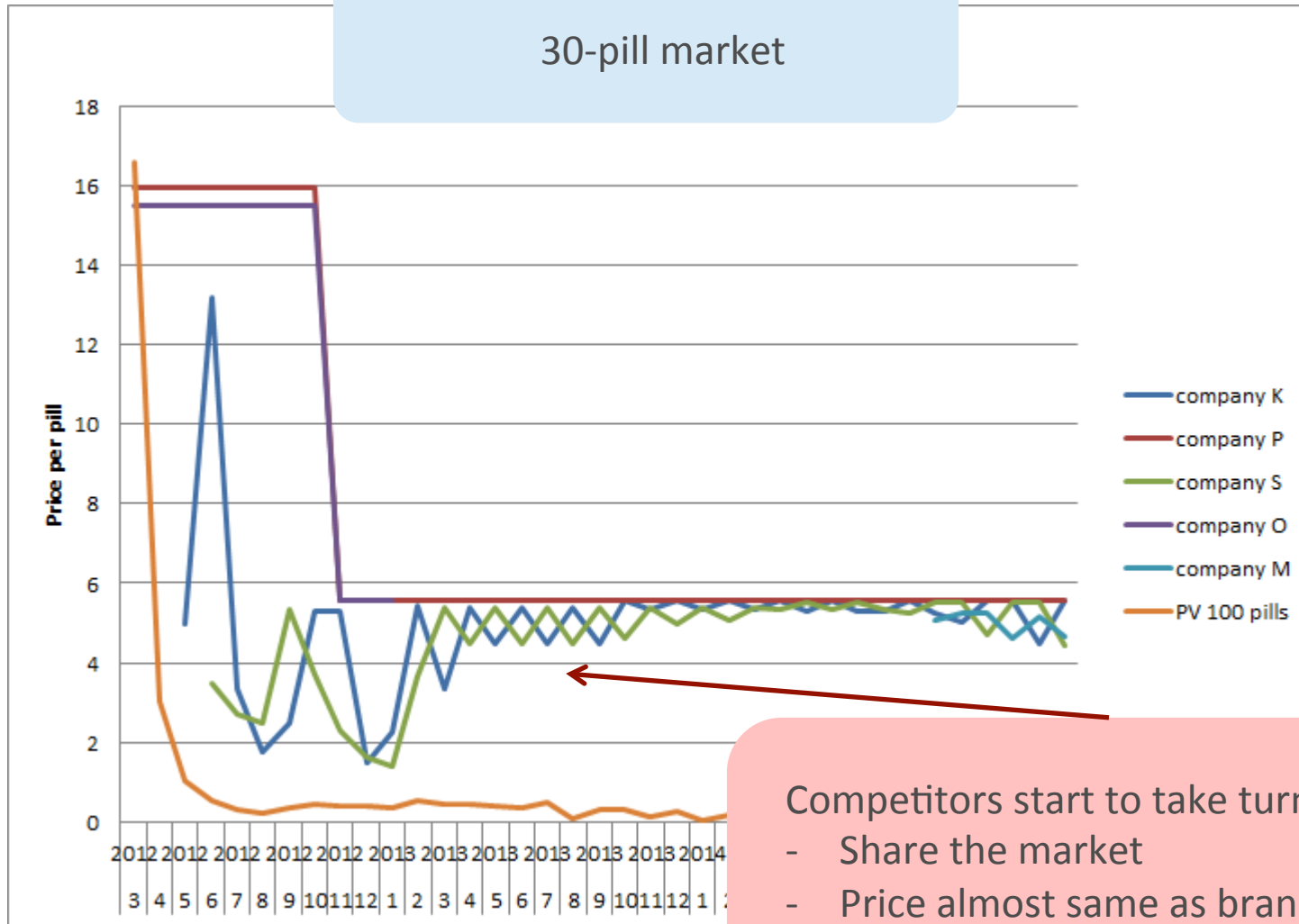
Price of the product of the month



Generic drugs



Generic drugs



Competitors start to take turns

- Share the market
- Price almost same as brand name
- They seem to collaborate !

Cartels

- Q: Collaboration - What do we miss?
 - Markets are long lived
 - Changes the situation dramatically

Agenda

- Issues
 - How can cartels enforce their agreements?
 - What markets are at risk?
 - How can we fight cartels?

First a little bit of game-theory...

“The Folk Theorem”

Folk theorem

- Repeated game theory
 - Model to explain how people can cooperate

Folk theorem

- Recall “prisoners’ dilemma”
 - Two players
 - Two strategies: Cooperate and Cheat
 - Payoff matrix:

	Cooperate	Cheat
Cooperate	10, 10	-1, 18
Cheat	18, -1	0, 0

Folk theorem

- Unique Nash equilibrium: both cheat

	Cooperate		Cheat
Cooperate	10, 10	→	-1, 18
Cheat	18, -1	→	0, 0

Red arrows indicate that for each player, cheating is a dominant strategy: a downward arrow from the top-left cell to the bottom-left cell, and a downward arrow from the top-right cell to the bottom-right cell. Horizontal arrows point from the left column to the right column, indicating that for each row, the right strategy is preferred.

– In fact: cheat is dominating strategy

Folk theorem

- Now repeat PD game infinitely many times
 - $t = 1, 2, 3, \dots$
 - Payoff = discounted sum of period payoffs
- Definition: Strategy
 - A complete contingency plan
 - Tells you what to do
 - Every day in the future
 - Depending on what has happened previously

Folk theorem

- Define: Trigger strategy
 - Period 1: Cooperate
 - Period $t = 2, 3, \dots$
 - Cooperate, if both have cooperated all previous periods
 - Cheat, otherwise
- Note
 - This is only a definition – a possible way to behave
 - If both follow TS, then cooperation (at every t)
 - Question: when would players behave like this?

Folk theorem

- Need to study
 - If player A (B) wants to use TS,
 - assuming that B (A) uses TS
 - In other words: is this an equilibrium?

Folk theorem

- Analysis
 - Assume A follows TS
 - Does B want to follow TS (in every subgame)?
 - If so, (TS, TS) is SPE
- Need to consider two cases (types of subgames)
 - When nobody has cheated in the past
 - When somebody has cheated in the past

Folk theorem

- Assume: nobody has cheated in the past

Folk theorem

- Assume: nobody has cheated in the past

Follow TS

$$U^{cooperate} = 10 + \delta \cdot 10 + \delta^2 \cdot 10 + \delta^3 \cdot 10 + \dots = 10 \cdot \frac{1}{1-\delta} \quad (\delta < 1)$$

Folk theorem

- Assume: nobody has cheated in the past

Follow TS

$$U^{cooperate} = 10 + \delta \cdot 10 + \delta^2 \cdot 10 + \delta^3 \cdot 10 + \dots = 10 \cdot \frac{1}{1 - \delta} \quad (\delta < 1)$$

Cheat

$$U^{cheat} = 18 + \delta \cdot 0 + \delta^2 \cdot 0 + \delta^3 \cdot 0 + \dots = 18$$

Folk theorem

- Assume: nobody has cheated in the past

Follow TS

$$U^{cooperate} = 10 + \delta \cdot 10 + \delta^2 \cdot 10 + \delta^3 \cdot 10 + \dots = 10 \cdot \frac{1}{1-\delta} \quad (\delta < 1)$$

Cheat

$$U^{cheat} = 18 + \delta \cdot 0 + \delta^2 \cdot 0 + \delta^3 \cdot 0 + \dots = 18$$

No deviation if

$$U^{cooperate} \geq U^{cheat} \Leftrightarrow 10 \cdot \frac{1}{1-\delta} \geq 18 \Leftrightarrow \delta \geq \frac{4}{9}$$

Folk theorem

- Folk theorem
 - IF,
 - a game (e.g. prisoners' dilemma) is **repeated** infinitely many times, and
 - the players are **sufficiently patient**,
 - THEN,
 - they can enforce **cooperative** outcomes,
 - simply by threatening not to cooperate anymore if somebody cheats.

Folk theorem

- But, multiple equilibria
 - Also the strategy “Always cheat” is a subgame-perfect equilibrium
- Conclusion
 - Folk-theorem shows conditions under which cooperation **might** arise, not that it must arise

How cartels work

How can they enforce their agreements?

How cartels work

- Cut the story short
 - Cartels are very similar to repeated prisoners' dilemma
 - All firms charge high price, but
 - If somebody cheats, they will punish the cheater, perhaps with a price war
- But, this can only happen under certain conditions

What Markets have High Risk of Cartels?

Which Markets?

- Factors facilitating collusion
 - Discount factor (interest rate)
 - **Concentration**
 - Entry barriers
 - Frequency of interaction
 - Transparency
 - Business cycles and fluctuations
 - Firm differences
- How to use the list
 - Identify potentially problematic industries
 - In cases, analyze if allegations plausible

Which Markets?

Concentration

- If a duopoly firm cheats

- » Gain (first period): $\pi^m/2 = \pi^m - \pi^m/2$

- If a triopoly firm cheats

- » Gain (first period): $2\pi^m/3 = \pi^m - \pi^m/3$

- Prediction

 - Low concentration \rightarrow more tempting to cheat \rightarrow cartels less stable

Cartel Deterrence

Richard Whish & David Bailey: Competition Law, Seventh Edition,
Oxford University Press, 2012.

Article 101 TFEU

1. The following shall be prohibited as incompatible with the internal market: all **agreements** between **undertakings**, decisions by associations of undertakings and **concerted practices** which may **affect trade** between Member States and which have as their **object or effect** the prevention, restriction or distortion of competition within the internal market, and in particular those which:

(a) directly or indirectly fix purchase or selling prices or any other trading conditions;

(b) limit or control production, markets, technical development, or investment;

(c) share markets or sources of supply; ...

Article 101 TFEU

2. Any agreements or decisions prohibited pursuant to this Article shall be automatically **void**.

Article 101 TFEU

3. The provisions of paragraph 1 may, however, be declared inapplicable in the case of

[... agreements ...]

which **contributes** to improving the production or distribution of goods or to promoting technical or economic progress, while allowing consumers a fair share of the resulting benefit, and which does not:

(a) impose on the undertakings concerned restrictions which are not indispensable to the attainment of these objectives;

(b) afford such undertakings the possibility of eliminating competition in respect of a substantial part of the products in question.

“Undertakings”

- **Included**
 - Private (for-profit) firms
 - Trade associations
 - Cooperatives
 - Football clubs
 - Public authorities (when doing “**economic activities**”)
- **Excluded**
 - Goods and services provided on the basis of **solidarity**
 - Example: Schools
 - Motivation:
 - Payments according to income
 - Consumption based on “need”

Types of agreements

- Horizontal
 - Price cartels
 - R&D collaboration
- Vertical
 - Resale price maintenance
 - Exclusive territories

Agreements and concerted practices

- **Included**
 - Contracts
 - Partial agreement during negotiation process
 - Also if only one party reveals its intentions
 - Recommendation by trade association
 - Exchange of information, also about e.g. past prices
- **Excluded**
 - Tacit collusion = when firms act without contact

Burden of proof

- Commission
 - But there are presumptions that e.g. agreements over prices limit competition
 - Then firms must prove no effect

“*Object or Effect* of restricting competition”

- If object of restricting competition
 - Then, commission needs not prove effect
 - Sufficient to prove:
 - *potential* negative impact
 - given the economic context (= market characteristics)
 - Thus
 - Object = theoretical prediction

Examples

- Horizontal
 - Price cartels typically reduce competition
 - Sufficient to prove that firms met and talked about prices
 - Need not show that prices actually higher
- Vertical
 - Minimum resale prices
 - Bans to export to other member states

Counterfactual

- When proving “effect”
 - Necessary to show what would have happened absent the agreement

De Minimis doctrine

- (Potential) effects must be appreciable
 - Effect on competition
 - Effect on trade
- Example
 - Two firms with 5% market shares => probably no effect on competition
 - Except possibly hard-core cartels

Effect on trade between Member States

- Defines boundary between
 - EU law
 - National competition law

Exceptions 101(3)

- 4 requirements
 - Agreement creates “efficiencies”
 - Consumers gain
 - No unnecessary restrictions on competition
 - Unless competition affected “too much”
- Burden of proof
 - Firms
- Example
 - Price cartel – extremely unlikely to be okay
 - Exclusive territories may be okay
 - Block exemptions = classes of agreements that are okay (if market shares low)

Decision making

- EU
 - Commission decides
 - Firms may appeal to courts
- Sweden
 - KKV = “prosecutor”
 - Courts decide

Sanctions

- **Fines**
 - Up to 10 % of world wide turnover
 - Total yearly fines \approx € 2-3 billion
- **Damages**
 - Those who loose may prove harm in court
- **Criminal**
 - US, UK: Top executives may go to jail for hard core cartels

Importance of economic analysis in case work

- Examples

- Object of restricting competition = use of economic theory
- Counterfactual = use of economic theory
- Economic evidence to support “theory of harm”
- Article 101(3) = balance anticompetitive effects and efficiencies
- Compute damages