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Algorithmic pricing and tacit collusion

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Rise of algorithmic pricing

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EC's E-commerce inquiry (2017)

- 53% of the respondent retailers track the online prices of competitors, out of which 67% use automatic software programmes for that purpose.

- Larger companies have a tendency to track online prices of competitors more than smaller ones.

- The majority of those retailers that use software to track prices subsequently adjust their own prices to those of their competitors (78%).

- Users of algorithms represent around 2–3% of total sellers on Marketplace, but around 40% of those sellers that change their product price at least 20 times over its lifespan (Chen et al 2016)

- "Electronic shelf labeling"

What algorithms?

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- **Analytical:** software that sets prices according to the state of the world, where the pricing rule uses statistical analysis of historical data and is static from that point onwards.
- **Heuristic**: software that applies simple rules-based approaches to pricing, contingent on the state of the world
- **Autonomous**: software that sets prices according to the state of the world, where the underlying algorithm might be initialised with historical data, but continuously evaluates performance and *updates itself* based on observed outcomes.
- **Auctions**: software implementations of bidding process

Companies use a combination of the above, but mainly heuristic (Oxera Discussion paper, 2017)

What are we worrying about?

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Ezrachi and Stucke (2016) identify 4 types of potentially collusive use of algorithms

(1) Messenger: to help the monitoring and maintenance of a *cartel*

(2) Hub & Spoke: use of a single price-setting algorithm *to coordinate* on collusive prices

- Note: coordination can be horizontal as well as vertical
- Open Q: secondary liability of the developer?

(3) Predictable Agent: *unilateral* monitoring of rivals' behaviour, punishing deviations from collusive price, or otherwise *facilitating tacit collusion*.

- Open Q: can antitrust reach this?

(4) Autonomous Machine: *unilateral* heuristic modeling following some high-level order, potentially without awareness of collusion as likely consequence

- Open Q: in addition to secondary liability of developer, also primary liability of *user*

Are the notions of “agreement” and “concerted practice” sufficiently flexible?

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C-2/01, *Bayer* (2004):

- Notion of agreement “centers around the existence of a concurrence of wills between at least two parties, *the form in which it is manifested being unimportant* so long as it constitutes the faithful expression of the parties’ intention”

C- 29/83 et al., *Rheinzink* (1984):

- "a form of coordination between undertakings, which, without having been taken to the stage where an agreement properly so-called has been concluded, knowingly substitutes for the risks of competition, practical cooperation between them”
- in particular "*any* direct or indirect *contact* between such operators by which an undertaking *may influence the conduc*t on the market of its actual or potential competitors *or disclose to them its decisions or intentions* concerning its own conduct on the market"

Tacit collusion before the ECJ

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C 48/69, Dyestuffs (1969)
Parallel pricing does not constitute a concerted practice under Article 101 TFEU when it reflects the "*normal conditions of the market*"

C 89/85, *Woodpulp* (1994)
"parallel conduct cannot be regarded as furnishing proof of concertation unless concertation constitutes the only plausible explanation for such conduct"…
but "It may be satisfactorily explained by the oligopolistic tendencies of the market", such as the nature of the products, the number of undertakings and the volume of the market

However, Article 101 does not deprive economic operators of the right to adapt themselves intelligently to the existing and anticipated conduct of their competitors (*Imperial Chemical Industries*, *Buchner v Bayerische Vereinsbank, Woodpulp II*)

Tacit collusion as theory of harm in merger cases

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T-342/99, *Airtours* conditions

- transparency
- incentives, retaliation
- non-contestability

C-413/06, Sony/Bertelsman

- Conditions may, however, in the appropriate circumstances, be established *indirectly* on the basis of what may be a very mixed series of indicia and items of evidence relating to the signs, manifestations and phenomena inherent in the presence of a collective dominant position.

Light burdens of proof: a European quick look

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Light burden of proof in constitutive element

- *1999/210, British Sugar (1999)*:

  When competition in the market was already restricted (by the oligopolistic nature of the market), it should be particularly vigilant to ensure that the remaining competition is not restricted

  Therefore, advance price target announcements could be evidence of a concerted practice.

- *T- 141/94 Thyssen Stahl v Commission (1999)*:

  Where the structure of a market is oligopolistic, it is all the more important to ensure the decision-making independence of undertakings and residual competition

  - Therefore, exchange of recent data on market shares could infringe 101(1).

However, light burden of proof also in defense

- T-442/08, *CISAC* (2013):

  The Court held that there was an explanation of parallelism which was the fight against unauthorized use of musical works, and the Commission failed to show that this explanation was implausible.

Tacit collusion and information exchange: *T-mobile* and *Eturas*

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C-8/08, *T-mobile* (2013)

- Presumption of taking into account exchanged information was based on common experience and companies were free to challenge it

- Principle of effectiveness requires that not only objective and direct evidence but also objective and consistent indicia may be used to prove competition infringement.

C-74/14, *Eturas* (2016)

- Presumption of innocence does not preclude adopting a presumption according to which the TAs were aware of the contents of the message as from the date of its dispatch, if objective and consistent indicia supported this and rebutting the presumption was not excessively difficult or did not require unrealistic steps.

- Giving more weight to facilitating practices (thereby raising the standard of proof for defenses) is warranted in the presence of a more homogeneous competitive landscape

The role of fundamental rights

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ECHR 10519/83, *Salabiaku v France (*1988)

- While the Convention does not regard presumptions with indifference, they are not prohibited in principle, as long as States remain within reasonable limits, taking into account the importance of what is at stake and maintaining the rights of the defence

1) must not deprive the alleged offenders of every possibility of defence; and (2) should not be applied mechanically

Alternative theories of liability

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- Market manipulation: use of advanced algorithms to transform pre-existing market conditions in such a way to facilitate tacit collusion
- Abuse of collective dominance

The case of UK market investigations

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- Focus on structural features including high levels of market concentration, high entry barriers, common ownership of competing facilities, buyer power, information asymmetry.

Possible remedies

- **Structural measures** (eg divestiture, IP licensing) to make it harder to achieve, monitor and sustain a coordinated outcome, by increasing the number of significant market participants.
- **Market-opening measures** (eg reduction of entry barriers) to increase the competitive constraint from entry and thereby increasing competitive threat to incumbents.
- **Restrictions on supplier conduct or other market features that have the effect of facilitating coordination—**for example, remedies might be aimed at limiting the availability of information held by suppliers about their rivals.
- **Recommendations to Government or regulatory bodies** to ensure that government laws or

Infomediaries as potential solution?

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- Aggregation of demand and intelligence
- GDPR encourages this model to counter price discrimination
- Also facilitated by the right to data portability (GDPR, PDS2, consumer protection law)

- However, explainability and portability are a double-edged sword
  - Gaming strategies by competitors
  - Shift of control over new class of algorithmic players

Conclusions

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- Crucial question about intent for algorithm developer
- Possible accommodation of algorithmic facilitation practices through presumption
- However, limits of reasonableness and rebuttability
  - Co-regulation?
- Alternative theories of liability seem far-fetched
- Sponsoring infomediaries can be a counterstrategy, but require authorities to remain vigilant
- Regulatory approach provides easiest but costly solution