I can't believe it's not butter –
The tale of digitalisation, competition and misconception

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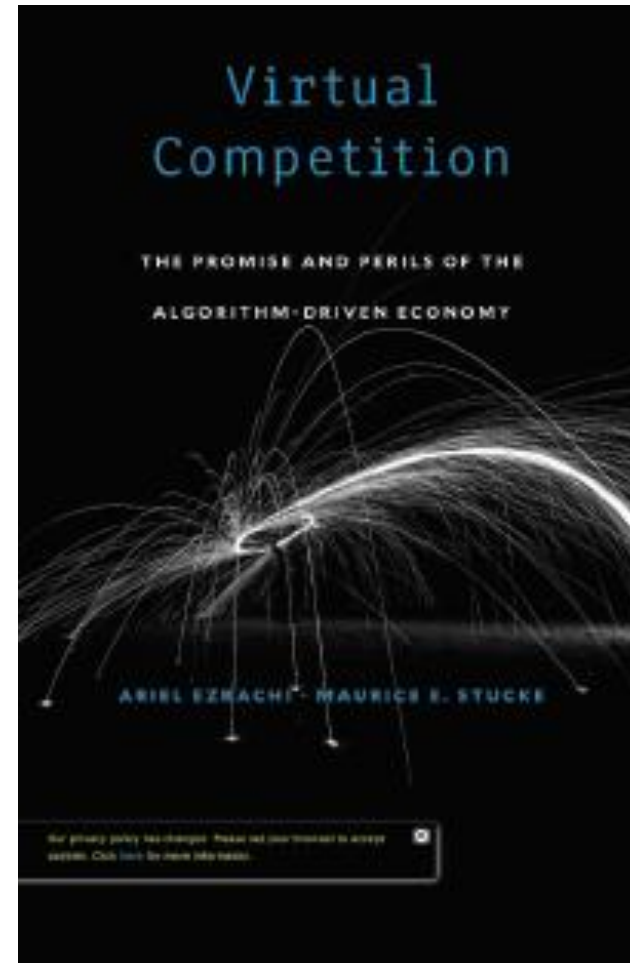UNIVERSITY OF OXFORD

Outline

Algorithmic Collusion

Collusion

Four key scenarios –

1. *'Messenger'* where algorithms help humans collude
2. *Hub and Spoke* - common intermediary
3. *Tacit Collusion on Steroids -- The Predictable Agent*
4. *Artificial Intelligence, God View, and the Digital Eye*

Hub and Spoke

1. Intentional *v* incidental.
2. Use of same algorithm.
3. Use of same provider – A2I …
4. Challenge – Identify a threshold of illegality
5. "Avoid price wars"

Tacit collusion

1. Challenge – Identify a threshold of illegality -
2. … rational reaction, observe and imitate, decode strategy, RPM,…

Coordination problem

Views expressed by some economists – based on experimental observations

The important role of communications in stabilizing and optimizing collusion.

Firms are unlikely to develop a mutual understanding over a collusive strategy absent direct communication in the initiation phase.

The number of collusive equilibria present in a repeated game defies simple alignment of price

As a result →

When we observe what appears to be tacit collusion in these markets, it is likely the result of illegal human communications.

Coordination problem

The law accepts parallel behavior as possible outcome under spesific market conditions

Tacit collusion falls outside the scope of Section 1 of the Sherman Act and Article 101 TFEU.

It is only when parallel behavior cannot be explained as the outcome of tacit collusion (or due to other factors), that it may serve as proof of illegal collusion.

"Competitors in concentrated markets watch each other like hawks."

- *CISAC v Commission*
- Imperial Chemical Industries (ICI) v Commission (Dyestuffs)

A gap?

Legal explanation –

If one were to reject the prevailing legal viewpoint, we may quickly shift to a Type I error (false positive).

If anticompetitive conscious parallelism/tacit collusion is considered implausible without communication, the court could infer communications.

If the skeptics are right, humans have somehow successfully skirted antitrust liability for decades by disguising their communications. No point in using algorithms, as humans have cracked the system.

Market explanation –

Misalignment between market realities and the experimental evidence that some economists rely upon.
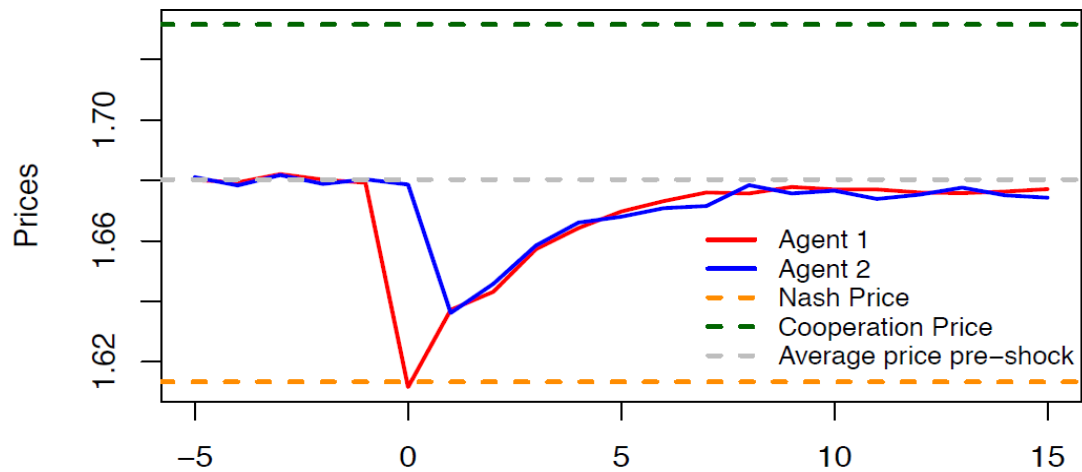
"Industry awareness"

Current work with Q-learning …

Q-learning
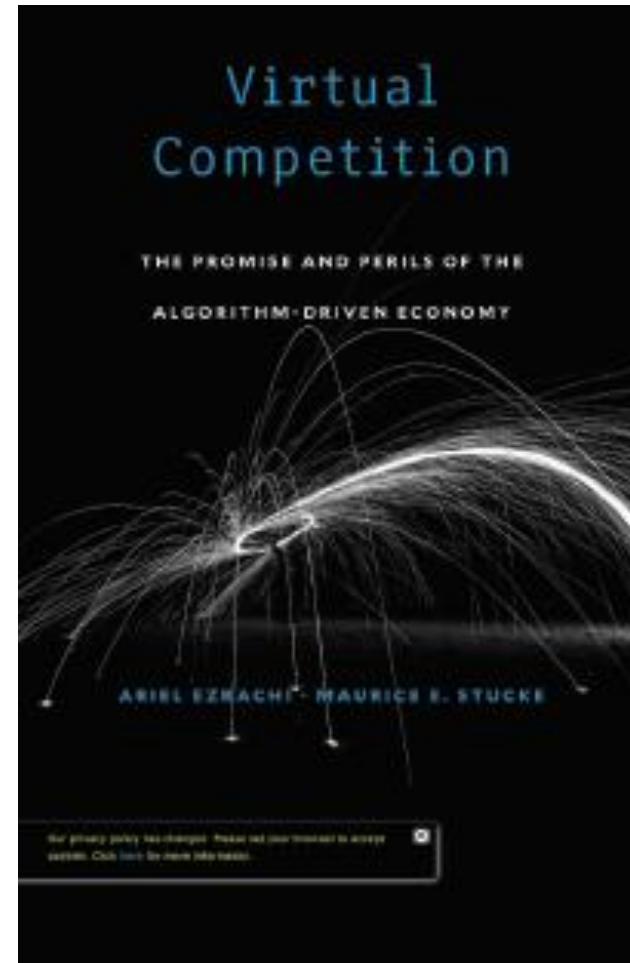
▶ Timo Klein, Amsterdam

▶ Giacomo Calzolari, EUI

Source: Calvano, Calzolari, Denicolò and Pastorello 'Q-Learning to cooperate'

Behavioral Discrimination

Behavioural Discrimination

- Controlled Ecosystems: *The Truman Show*

- Friction and outside options.

- Exploit emotional bias. ..."*moments when young people need a confidence boost.*"..." *"insecure," "defeated," "anxious," "silly," "useless," "stupid," "overwhelmed," "stressed," and "a failure."*

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- The role and limits of digital comparison tools (DCTs)

- Fairness as a limit of behavioral discrimination.

- Minimize the Perceived Unfairness through Framing Effects

The Digital Butler

WHAT YOU NEED. WHEN YOU NEED IT.

Policy considerations

- Is this a competition problem?
- Consumer protection problem?

- Welfare effects - Third degree or first degree price discrimination?

- Empower consumers?

- What is the market? How wide?

Enforcement Challenges

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Global Perspective
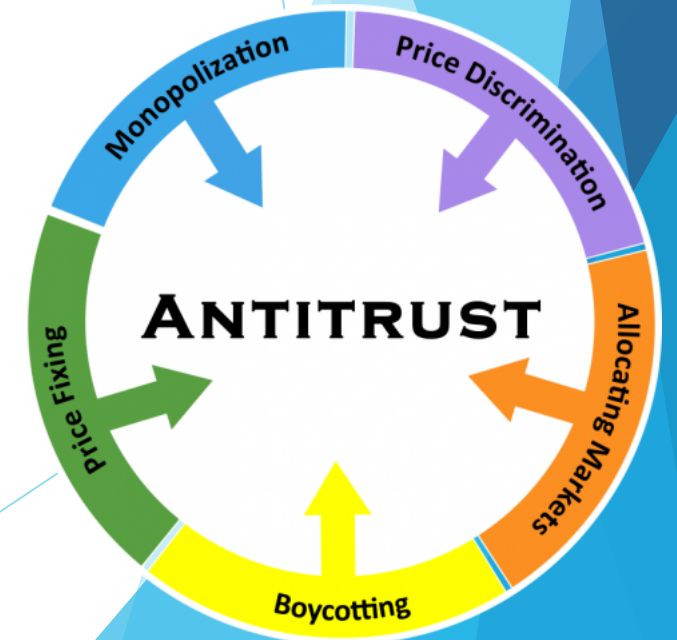
What do do?
Is there a competition problem?

EU Law

▶ Prevent distortion of competition

▶ Ensure fair competitive market

▶ *Google*

▶ *Amazon*

▶ *Facebook*

▶ Parity (Booking,...)

▶ Regulation – GDPR, E-privacy...

US Antitrust law

▶ The market ability to correct

▶ Prevent chilling effect

▶ No competition harm

Yet,...

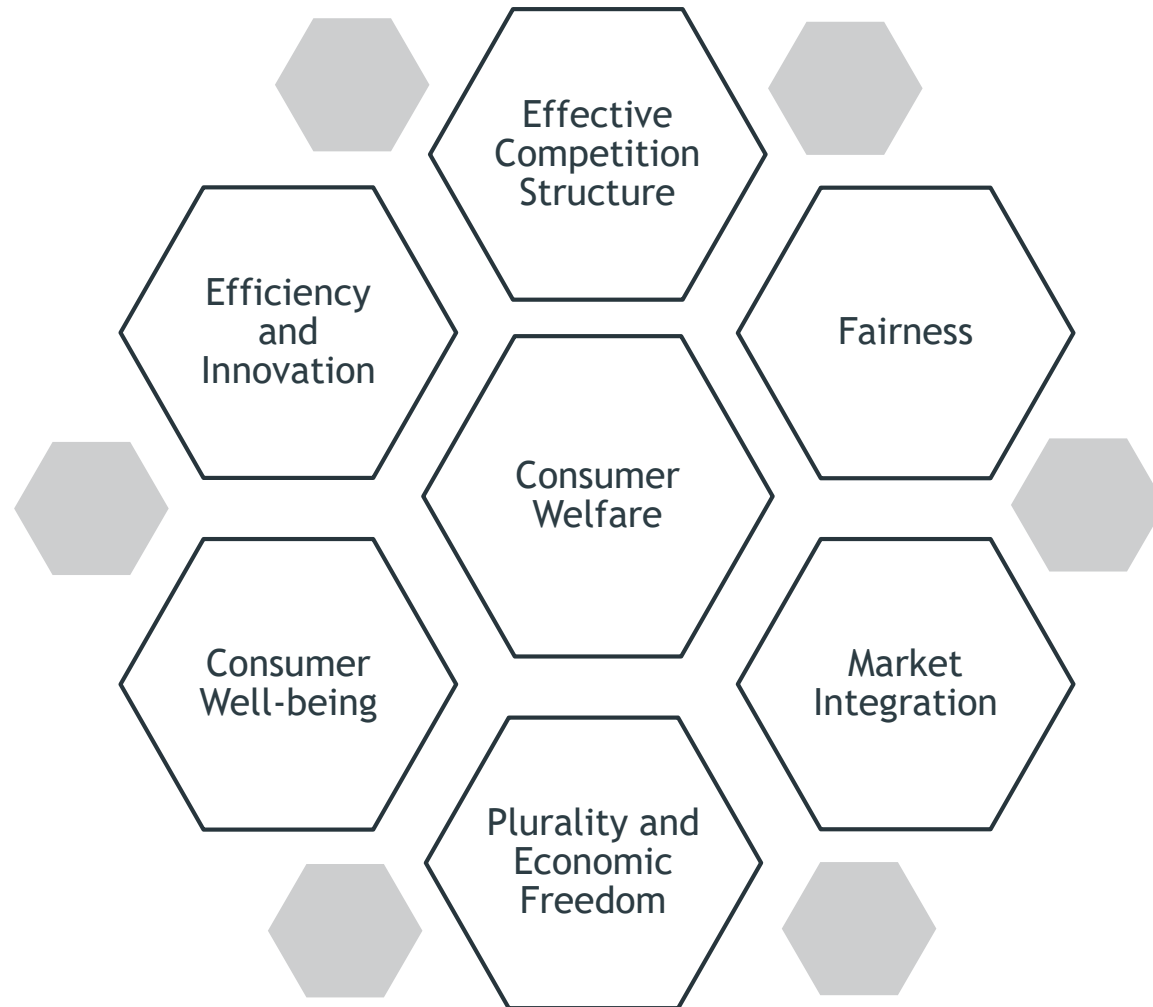▶ Inequality

▶ Political condemnation,...

Break up the largest US tech companies, including Amazon, Google, and Facebook ?

Sen. Elizabeth Warren

The Scope of EU Competition Law

BEUC Consultation