

# *Can Computers Collude and Discriminate?*



Pros and Cons 2016  
Friday 11 November 2016

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# The Dynamics of Competition



## *The Promise* of the Algorithm-Driven Economy

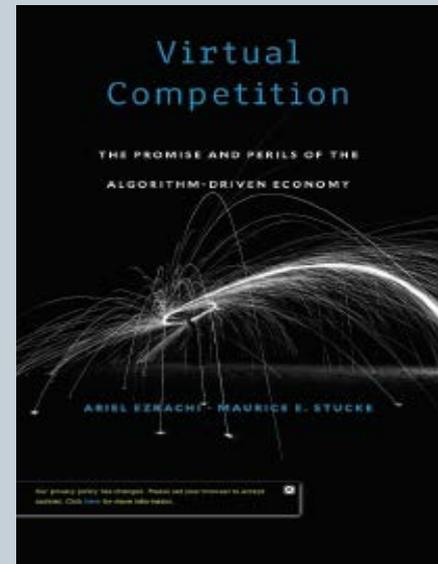
- Transparency and flow of information
- Lower Search Costs
- Dynamic competition
- Entry and Expansion
- Dynamic pricing
- Disruption and Efficiencies
  
- The Rise of Big Data and Big Analytics

# *The Perils of the Algorithm-Driven Economy*



Competition, as we knew it -- the invisible hand of competition -- is being displaced in many industries with a digitalized hand.

- Collusion
- Discrimination
- Frenemy



# The Collusion Analytical Framework



- **The Messenger Scenario**
  - The Algorithm as an Intermediary
- **Hub and Spoke**
  - Intentional and unintentional use of algorithms to align price.
  - *Eturas and Others*
- **Tacit Collusion on Steroids: The Predictable Agent**
  - *Fast predictive & similar analytics*
  - Adopt a similar approach to Mergers review?
- **God View and Artificial Intelligence**
  - Big data and big analytics

# Behavioural Discrimination



- Price Discrimination and dynamic pricing.
  - Differential pricing and limited arbitrage
- Limitations to perfect discrimination.
  - Insufficient Data
  - Predictability and (Ir)rationality
- Controlled Ecosystems: *The Truman Show*
- The Rise of “Almost Perfect” Behavioural Discrimination
  - Over 100 biases,...
  - Decoys, price steering, complexity, drip pricing ...

# The digital butler



- **The Digital Butler**

“The goal is to build a personal Google for each and every individual”  
*Sundar Pichai, Google’s chief executive*

- **Entry barriers - data-driven network effects:**

- Traditional Direct network effects.
- Spill-Over network effects.
- Trial-and-Error (learning by doing).
- Scope of Data.

- **The purist butler?**



WHAT YOU NEED. WHEN YOU NEED IT.

# *But what about disruptive innovation ?*



*The formidable market forces will fix it,...*

‘In Silicon Valley a handful of giants are enjoying market shares and profit margins not seen since the robber barons in the late 19th century.

“**Competition is for losers**” says Peter Thiel, a co-founder of PayPal, a payments system, and the first outside investor in Facebook.’

*The Economist , Sep 17, 2016 (The superstar company)*

Intellectual capture

Defenses used to shield the giants include:

Network effects, interconnectivity, M&A, deep pockets,....



# Enforcement



- **Competition law -**
  - Conceptual and practical challenges.
  - Identify the adequate level of intervention.
- **Privacy laws**
- **Customer Empowerment**
- **Ex-ante measures**
  
- EU Commission 'e-commerce sector inquiry preliminary report'
- CMA 'digital comparison tools' market study and possible subsequent market Investigation.
- OECD, EDPS, House of Lords, Joint France/German Report

# Food for thought



- To what extent does the “invisible hand” still hold sway?
- What are the effects on choice and competition ?
- The end of competition as we know it.
- In markets continually manipulated by bots and algorithms, is competitive pricing an illusion?
- How ‘stable’ or ‘sponge-like’ is our competition law analysis?

*As power shifts to the hands of the few –  
what are the risks to our democratic ideals,  
and our economic and overall well-being?*

