APPLICATION OF COMPETITION LAW AND POLICY TO BIG DATA

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Big data – The main policy questions

• Exponential growth of the digital economy → rise of business models based on the collection and processing of “Big Data”, with implications for competition authorities

• How to consider Big Data across the enforcement spectrum?
  - Big Data as an asset and as possible barrier to entry
  - Privacy as an element of quality of service
  - As a basis for price discrimination

• Is competition law is the only or the most appropriate tool for dealing with such issues?

**OECD: Hearing discussion on Big Data (November 2016)**
Outline of presentation

This presentation is organised in three main parts:

1. Impact of Big Data on innovation and market power
2. Potential implications for competition law enforcement
3. Links between data regulation and competition policy
Part I
Impact of Big Data on innovation and market power

• What are the pro-competitive effects of Big Data?
• How can access to and use of data enhance market power?
• Does Big Data imply market-tipping or winner-takes-all outcomes?
• How to balance pro-competitive against anti-competitive effects?
What’s “Big Data”? 

“Big Data is the information asset characterized by such a high volume, velocity and variety to require specific technology and analytical methods for its transformation into value.” De Mauro et al (2016)

- Data-driven innovation users benefit from a 5% to 10% faster productivity growth. OECD (2015)

- As a result of Big Data, the EU economy will grow by an additional 1.9% by 2020. Buchholtz et al (2014)
What’s “Big Data”? 

The 4 V's of big data:

- **Volume**: global data centre IP traffic is estimated to reach a forecasted value of 10.4 zettabytes in 2019.
  - Illustration: in order to store 10.4 zettabytes of data, every individual in the world would have to own 11 iPhones of 128 gigabytes.

- **Velocity**: the speed at which firms access, process and analyse data is now approaching real time, allowing companies to forecast things as they happen - **now-cast**.
  - Example: Google's use of search queries to detect flu epidemics as they happen, as compared to traditional measures (such as patient visits to hospitals) that have time lags of 1-2 weeks.
What’s “Big Data”? 

- **Variety**: data is collected from multiples sources, allowing firms to know costumers' age, gender, location, household composition, dietary habits, biometrics, preferences…

- **Value**: Big data allows companies to come up with product innovations, improve the efficiency of productive processes, forecast market trends, improve decision making and enhance consumer segmentation.
Pro-competitive effects of Big Data

- Innovation
- Efficiency
- Segmentation
- Forecast
- Monetisation

BIG DATA
The use of data by business results in substantial gains, some of which pass on to consumers:

- New product and services
- Low prices
- Quality improvements
- Real-time supply
- Personalised recommendations
- Customised products
- Consumer information
- Forecast diseases, natural disasters (…)

Pro-competitive effects of Big Data
• How can data enhance market power?

- Traditional Sources
  - Economies of scale
  - Economies of scope

- New Sources
  - Network effects
  - Data Feedback Loops
Big Data & Market Power

• **Economies of scale**
  – High fixed costs of IT infrastructures
  – Reduced value per individual observation

• **Economies of scope**
  – Gains from cross-referencing data collected from a variety of sources

• **Network effects**
  – Collection of data by online platforms that benefit from direct and indirect network effects
Big Data & Market Power

- **Data feedback loops**
  - Big data fades the line separating demand from supply agents, as online users supply data that is consumed and monetised by companies.
Anti-competitive effects of Big Data

- HOWEVER... Controlling Big Data does not always lead to market power or winner-takes-all outcomes:
  - Data is cheap to collect
    - Points of sale cash registries, web logs, sensors, broker industry...
  - Data faces decreasing returns to the number of observations
  - Large data-driven companies frequently compete vigorously across multiple products

\[ y = x\beta + u \]

As much as the number of observations increases, it is not possible to eliminate the error term...
How to address competition concerns?

- Big Data should not be subject to “per se” treatment.
- Big Data should not give rise to competition law enforcement UNLESS anti-competitive conducts are observed.
Part II
Potential implications for competition law enforcement

• How can Big Data be incorporated into competition law enforcement?
• Can existing tools be adapted to address competitive concerns?
• What are the risks of over-enforcement?
Competition law enforcement

One can identify 2 possible approaches to address the risks of Big Data through competition law enforcement:

1. **To treat data as an input or asset that can be used for anti-competitive strategies.**

2. **To consider the impact of data on alternative dimensions of competition, such as quality and innovation.**
As an important asset, data can be used in several ways for potentially anti-competitive purposes:

- **Anti-competitive mergers**
  - Use of data to identify and displace potential competitors through pre-emptive mergers
  - Data motivated acquisitions that reinforce market power

- **Unilateral conducts**
  - Prevent access to essential data in order to foreclose the market
  - Use of data-mining to discriminate consumers

- **Collusion**
  - Share data to facilitate tacit collusion
  - Use of algorithms to implement cartels
  - Data analysis to identify threats and block entry
What should competition authorities do?

- It is consensual that competition law enforcement should prevent data-related anti-competitive strategies.

- Current antitrust tools can be adapted to address these risks, by treating data as any other input and designing appropriate remedies.

➢ Particular focus on the risks of foreclosure.

Note: extreme remedies such as requirements to share input should, as always, be careful weighted and used only in the absence of better alternatives.
Before any antitrust intervention, the following questions should be addressed:

- Is data replicable in the relevant market?
- Can data be collected from other sources?
- What is the degree of substitutability between alternative datasets?
- How quickly does data become outdated?
- How much data needs a potential entrant to compete?
Competition law enforcement

One can identify 2 possible approaches to address the risks of Big Data through competition law enforcement:

1. To treat data as an input or asset that can be used for anti-competitive strategies.

2. To consider the impact of data on alternative dimensions of competition, such as quality and innovation.
Big Data is a source of horizontal differentiation across firms, potentially affecting several product characteristics:

- Personalised content
- Product innovation
- Privacy protection
- Consumer choice
- Non-discrimination
- Freedom of speech?
“if network effects lead to a reduction in the number of search competitors, consumers will suffer from a diversity of choice among search engines, which will reduce the incentives of search firms to compete based on privacy protections or related non-price dimensions.”

In Dissenting Statement of Commissioner Pamela Jones Harbour
Data as a quality element of competition

Microsoft / Yahoo Joint Venture

“We will need to scrutinize the deal carefully to ensure that it will not cause any harm to the competitiveness of what has been a vibrant high tech marketplace, nor negatively impact the privacy rights of internet users.”

In a statement by the Senator Herb Kohl
“Dominant companies are subject to special obligations. These include the use of adequate terms of service as far as these are relevant to the market. (...) For this reason it is essential to examine under the aspect of abuse of market power whether the consumers are sufficiently informed about the type and extent of data collected”

Stated by the Bundeskartellamt’s president Andreas Mundt
Data as a quality element of competition

• HOWEVER… Not all product characteristics are relevant for competition policy!

• The impact of Big Data on a product characteristic should not trigger antitrust actions unless:

  Checklist

  ✓ Consumers value that product characteristic

  ✓ Competition actually takes place on the dimension of that product characteristic
Data as a quality element of competition

• How to introduce a quality dimension in competition policy?
  – Current competition tools are based on price effects.
  – Should competition authorities develop and introduce new tools to account for quality effects?

SSNIP
Test for a small but significant non-transitory increase in prices

SSNDQ
Test for a small but significant non-transitory decrease in quality
Data as a quality element of competition

• Challenges in addressing quality through competition policy:
  – Lack of good quality measures
  – Risk of introducing an undesirable level of subjectivity
  – Overlap with the role of other public bodies

Who should address non-traditional quality dimensions of competition?

Consumer protection

Competition policy

Data protection
Part III

Links between data regulation and competition policy

- What failures of digital markets may require a regulatory response?
- What regulations may complement or replace the role of competition policy?
- How does competition policy interact with other public bodies?
Market failures in the digital economy

• Market power
  – In digital markets, instead of charging high prices, companies may exert market power through massive collection of personal data.

“91% of adults in the survey ‘agree’ or ‘strongly agree’ that consumers have lost control over how personal information is collected and used by companies”

US survey by the Pew Research Center (2014)
Market failures in the digital economy

- Asymmetry of information
  - Online users frequently ignore terms of service, including the detail and purposes for which data is collected

“reading privacy policies carries cost in time of approximately 201 hours a year, worth about $3,534 annually per American Internet user”

McDonald and Cranor (2008)
In the absence of a regulatory framework that promotes market transparency and consumer’s control over their own data, a systemic risk of trust could undermine the good functioning of the digital markets.
Intersection between public agencies

• In the design of a regulatory framework, competition law enforcers share common goals with agencies for consumer protection and data protection.

• Cooperation among agencies is strongly advised, in order to:
  – Achieve common goals using most efficient tools
  – Manage conflicting objectives (example: competitive impact)
  – Avoid overlap of resources

See presentation at the OECD Consumer Policy Committee, “Big Data: A Call for Cooperation among Agencies”
Intersection between public agencies

Diagram adapted from EDPS (2014)
Regulations: data standards

• The creation of standards may empower consumers with control over their own data and allow them to better understand the terms of the service

• However, standards must be carefully designed in order not to stifle innovation

Terms of Services

- I do not authorise the collection of my personal data.
- I authorise the collection of my personal data for internal purposes that are solely needed and used to provide the particular product or service in question.
- I authorise the collection of my personal data for the creation of aggregate databases that may be shared with third parties.
- I authorise my personal data to be collected and shared with third parties without any restrictions.
• Rules on data portability may have positive or negative impacts on competition and data protection, depending on how they are designed.

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<tr>
<th>Competition</th>
<th>Data protection</th>
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<td><strong>Positive effect</strong></td>
<td>Reductions switching costs and lock-in effects</td>
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<td><strong>Negative effect</strong></td>
<td>Could create barriers to entry and reduce incentives to innovate.</td>
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Regulations: online cookies

- Under the current regulatory framework of online cookies, consumers have substantial difficulties in opting out or removing cookies.
- CMA’s response to the European Commission’s public consultation on the review of the ePrivacy Directive:

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<tr>
<th>Regulation</th>
<th>Positive response</th>
<th>Negative response</th>
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<tr>
<td>Prohibits information service providers from preventing access to their non-subscription based services in case users refuse the storing of identifiers in their terminal equipment.</td>
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<tr>
<td>Requires manufacturers of terminal equipment including operating systems and browsers to place on the market products with privacy by default settings.</td>
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References


Thank you for your attention!

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