ACCESS BARRIERS TO BIG DATA

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Headline: AT&T-Time Warner Deal to Test Big Data Antitrust Theories

- AT&T – access to data on individual purchases, habits, and preferences
- Time Warner – can use data to deliver advertising to narrowly targeted audiences
- Can AT&T gain a competitive advantage?
- Is there a possibility of vertical foreclosure?
- Are there possible adverse effects on innovation?
- Can we learn from Comcast-NBC Universal? Google-DoubleClick?
- What remedies, if any, are needed if the deal goes through?
“Big Data” is a Game Changer

- Allows for regularized customization of decision-making
- Commercial value – deeper, richer, advanced knowledge
  - New products – self-driving cars, PDAs
- Government value – disease, climate, corruption
- Access to data becomes a valuable strategic asset
  - But, privacy can be an issue
- Market definition becomes important
- As does the analysis of barriers to entry
- OECD: big-data markets are likely to be concentrated
Characteristics of Big Data

- Volume – technology allows for huge databases
- Velocity – speed of change, freshness
- Variety – various distinct sources of information
- Veracity – accuracy of the data
- Advantages of Big Data – synthesis and analysis:
  - Data mining
  - Data segmentation
  - Anomaly detection
  - Predictive modeling
  - Learning
- OECD: “Big data … can create significant competitive advantage and drive innovation and growth”
The Data Value Chain

- Collection
- Storage
- Synthesis and Analysis
- Usage

- Barriers can exist at each of these four stages of data collection and analysis
Entry Barriers: Data Collection

Technological Barriers

• Often easy and inexpensive collection
  • Google/DoubleClick merger (“neither the data available to Google nor the data available to DoubleClick constitutes an essential input to a successful online advertising product.”)

• Access to data collection
  • Early access to data can be an important strategic role
  • Unique gateways can limit access (e.g., mobile telephony)
  • Pre-installed apps that gather data can create a “gateway barrier”
Entry Barriers: Data Collection

Technological Barriers

• Economies of scale, scope, and speed
  • Barriers created if substantial investments are sunk
  • Scope economies – Google’s Nest Labs – interactive thermostats and other device info creates economies related to the internet of things
• Economies of scale in data collection
  • The Google – Bing “debate”
  • Different data analytic tools can create divergent economies of scale
Technological Barriers (continued)

- Velocity - “Nowcasting” (e.g., Google queries on pricing, employment) becomes important as a policy tool
- Demand-side barriers – network effects, learning
- Can create two-level entry issues (e.g., Thomson/Reuters – a barrier to entry with respect to fundamentals data for publicly traded companies
- Many big-data driven markets are two sided
  - (e.g., free on-line information through search generates the ability to monetize advertising services)
- Barriers need not be high
  - Firms compete over eyeball
  - Multi-homing is common
Collection Entry Barriers: Legal

- Legal: Data protection and privacy laws
  - Can limit the use of cookies (can insert links to databases) and other personal data
  - The EU has placed limitations on the use of cookies (an “opt-in” mechanism – you must give permission to the use of cookies)
  - This limitation on access may give Google a competitive advantage
- Data ownership issues – e.g., who owns a person’s medical history may affect entry into a medical services market
Collection Entry Barriers: Behavioral

• Exclusivity with respect to unique sources of data
  • E.g., the Canadian case against Nielsen’s scanner data contracts
  • Conditions for access to data may be prohibitive

• What to collect
  • Limitations on data collection may limit competition
  • E.g., race, religion, income

• Disabling data collecting software
  • E.g., Microsoft OS software updates erase current search algorithms, placing Bing as the default
Barriers to Storage

• Technological advances have reduced entry barriers
• The move to the “cloud” has vastly increased storage
• But,
  • Lock-in can be a problem
  • Switching costs may be high
• There are legal barriers that restrict data transfers
  • Schrems: Ireland case – restricted transfer of personal data
  • EU Law – limits data transfers outside the EU
    • EU-US had a data transfer “safe harbor” protocol which was adversely affected by the Schrems decision
Barriers to Big Data Usage

• Technological
  • Inability to locate and/or reach individuals

• Behavioral
  • Limitations on data use and/or data transfers
    • e.g., U.S. requests Apple data
  • Limitations on data portability
    • e.g., Google limits use of its exported ad campaign

• Legal
  • Limitations to protect privacy
  • Intellectual property protection
    • Who owns particular databases?
Barriers to Synthesis and Analysis

- Data Compatibility and Interoperability
  - Incompatibility may limit portability and raise switching costs

- Analytical tools
  - Algorithms can create barriers

- Illustration
  - Delta Airlines decision to restrict access to Delta fare information to certain online travel agents (“OTAs”)
  - The Federal Communication’s Request for Information (“RFI”)
More on Entry Barriers

- Barriers can arise at all parts of the data value chain
- Big data is non-rivalrous, but data gathering is only part of the data-value chain
- Substitutability of various sources of data depends on speed
- Some barriers are observable; others are not
Effects on Competition

- Data are multidimensional
  - Quality and value are affected by the 4 V’s
    - Mergers generating economies of scope or speed can create barriers
  - Data from different sources can create important synergies
    - Restrictions on data portability can harm social welfare (e.g., access to patient care information)
  - Data can create an anti-commons problem (coordination difficult)
    - Data controlled by multiple barriers – creating a sharing arrangement can be difficult, given that the value of the data is likely to vary widely among users
Effects on Competition (continued)

• Nielsen (TV ratings) acquisition of Arbitron (radio ratings)
  • Would there be lost competition for “cross-platform audience measurement services”
  • Consent: Nielsen agreed to divest IP needed to develop competing national cross-platform audience measurement services

• Data as a public good
  • Easily copied and shared
  • Can be licensed to multiple users
  • Free-riding is possible – greater competition and synergies, but a reduced incentive to innovate
  • There are likely incentives to limit transparency and/or legal portability (but SSOs can overcome this)
Effects on Competition (continued)

- Data as an input
  - Entry barrier analysis should often be extend to related parts of the data-value chain
  - Comparative advantages in related markets can overcome entry barriers in big data markets (e.g., online advertising)
- Collection of big data may be the byproduct of other activities – this may create a two-level entry issue
- Balancing pro-competitive benefits and anticompetitive effects may prove difficult
- Price discrimination is a likely phenomenon
- International dimensions add to the complexity of issues
  - There is a comparative advantage to operating in multiple countries
Effects on Competition (continued)

- Broad generalizations re: big data are dangerous
  - OECD: economics of big data “[favors] market concentration and dominance.”
  - Tucker and Wellford, “Relevant data are widely available and often free,” and therefore there is a limited role for antitrust
- Example: The U.S. merger of Bazaarvoice and Power-Reviews
  - DOJ found that the data created an entry barrier into the market for rating and review platforms.
Conclusions

• Big data creates new challenges for competition economists
  • Empirical – managing large datasets
  • Legal – evaluating legal constraints
  • Theoretical
    • Enriching analyses of market definition, market power and competitive effects
    • Developing richer theories of innovation
    • Deepening our knowledge of exclusion through vertical foreclosure
  • Remedies
    • Expanding the scope of possible remedies
    • Analyzing the term of any remedies that are imposed
Selected References

Selected Reference (continued)