Market Definition in the Digital Era

(Theoretical and) Measurement Issues

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Market Definition in Digital Markets

I'll talk today about (theoretical and) measurement issues in market definition in digital markets.

Market Definition: General Overview

- Pre-2010 US: Product and geographic market definition
  - SSNIP/HMT; Likelihood of entry
  - Calculate market shares given market definition
- Post-2010 US: Directly measure competitive effects
- An open question: is market definition even necessary???
  - Maybe just look for competitive effects?

What's different about digital markets? I

There are three important economic characteristics about digital markets that can influence market definition:

1. Digital markets are frequently "two-sided"
   - ≡ Connect two (or more) groups of consumers and exhibit direct and (especially) indirect network effects
     - i.e. the value to consumers on one side depends on the number and/or types of users on the other side
     - Examples: payment cards, auction/dating platforms, media industries
   - Implications:
     1. Prices set to maximize profits on *both* sides of the market
     2. Prices can be zero on one side

What's different about digital markets? II

2. Digital markets frequently exhibit "competitive frictions":
   - Digital markets frequently 'tip" to a single/small number of sellers
   - Digital markets frequently embody complementary services:
     - ★ Digital music (iTunes), Digital hardware (iPods, smartphones), Online music services (Spotify, Rhapsody, Apple Music)
     - ★ $\Rightarrow$ Competition between "Ecosystems" (e.g. iOS v Android)
   - Digital market frequently exhibit switching costs
     - ★ e.g., due to non-portability of data across firms/ecosystems

What’s different about digital markets? III

3. Digital markets are typically *dynamic*
   - Digital market are often not in long-run equilibrium:
     - ★ Simultaneously exhibiting frequent turnover of leading firms...
     - ★ ...*and* the emergence of “Big Players”
   - Firms that provide complementary services in the short-run may provide substitute services in the long-run

Why might it matter?

Why might the different economic characteristics of digital markets matter for market definition?

Why might it matter: Two-sidedness?

- Market definition should be considered for *both* sides and must reflect the interdependencies of the two sides
  - If not, will tend to define *too narrow* a market
    - (Price increases on one side that lower participation lowers the value to the other side, reducing profits compared to a single-market analysis)
    - (Underestimating profit losses from price increases ⇒ can conclude a HM could profitably raise price when it couldn't)
    - (Causing *over-enforcement*?)
  - Filistrucchi et. al. (2014, *Journal of Competition Law and Economics*) survey a large number of cases from 2000-2012, some of which did and some of which did not
  - A (burgeoning?) consensus on this point?
    - e.g. Bundeskartellamt Think Tank (2016)

Why might it matter: Zero prices?

- That prices are zero on one side of a market does *not* mean it should be excluded from market definition
  - Example: free-to-air (FTA) television feedback effects
    - A “price increase” of a FTA TV station will reduce its viewership
    - → Reducing its attractiveness to advertisers (and thus its ad revenue)
    - → Providing it with less funding to invest in content quality
    - → Further lowering its viewership and profitability
  - Many case examples in Filistrucchi et. al. (2014)
  - Is there (again) a consensus on this point?

How to measure: Two-sidedness and zero prices I

How then to account for both sides of a two-sided market?

1. The SSNIP/HM tests for markets with zero prices can use “quality” as a proxy*
    - The key is to measure consumer substitutability; need not rely on prices to do so

How to measure: Two-sidedness and zero prices II

2. A particular challenge: defining advertising markets***
   - Do Facebook/WhatsApp compete in the same market for audiences? Do CNBC and the Golf Channel?
   - Academic literature astonishingly thin regarding within- or cross-media substitutability
     - ★ General pre-disposition in US casework that different media (TV, print, radio, etc.) are separate (offline) advertising markets.
   - Online?
     - ★ What of substitution across demographic groups? Across different modes of consumer use?
     - ★ How to handle advertising market *auctions*???

How to measure: Two-sidedness and zero prices III

3. Two-sided SSNIP/HM tests should account for feedback effects (if relevant)**
   - Going *both ways*, e.g.
     - From viewers to advertisers *and* from advertising to viewership
   - A measurement challenge:
     - May not be any "natural experiments" in the data
     - May need econometric modeling

Why might it matter: Competitive frictions?

- Competitive frictions are all potentially important
  - Market tipping and switching costs an inherent feature of (some) digital markets
  - Will feed into consumer switching patterns and are therefore (in principle) measurable
    - (Possibly raises difficult abuse of dominance questions)

Why might it matter: Competitive dynamics I

Competitive dynamics particularly important

- Market definition is a *means to an end*
  - The "end" is to understand the extent of a firm's market power...
    - e.g. for an abuse of dominance case
  - ... and/or how it might change
    - e.g. due to a merger

Why might it matter: Competitive dynamics II

- Two (very) challenging implications:
  - Low *current* prices and/or high *current* shares may not be dispositive of the strength of competition in a market
    - Are prices low because competition constrains them to be low or because a firm *chooses* to keep them low?
    - Could consumers switch quickly to another provider even if market shares are high (as argued in *Microsoft/Skype*)?
  - "Complementors" today can be competitors tomorrow
    - What if Comcast or AT&T wanted to buy Netflix?
    - Is online video a complement or substitute for pay-TV bundles?
    - Critically: Does the answer differ in the SR versus the LR?

How to measure: Competitive dynamics

4. How to account for such competitive dynamics???
   - This is at the frontier of academic research
     - e.g., Besanko, Doraszelski, and Kryukov, “Is dynamic competition socially beneficial? The case of of price as investment.” (Working Paper, 2017)
   - Even so, often can only be addressed using *computational theory*
     - Can it be done in a compressed timeframe? How to adapt it to the facts of a case?
   - Hard - but important - questions!

Conclusion

- I've briefly summarized what I think are the measurement challenges regarding market definition in digital markets
  - Like many empirical activities, the right method is very case-dependent

- I welcome questions from the audience about cases in which the questioner faced a measurement problem they weren't able to resolve


Thank you!