

Week 5: Competitive Forces on the Internet Part I – Information Goods

1. The Cost-Demand-Market Grid

The following table is going to be the road-map for the next four to five weeks.

Cost \ Demand	Homogeneous good	Non-homogeneous (Network Exts., Lock-in, Bundling, Versioning, etc.)
Information goods	a. Oligopoly (Bertrand comp.) b. Perfect Comp. (Entry)	Oligopoly (Competition in Differentiated Products)
Constant Returns to Scale – constant AC	a. Oligopoly (Bertrand comp.) b. Perfect Comp. (Entry)	Oligopoly (Competition in Differentiated Products)
Decreasing AC – Increasing Returns to Scale, large Fixed Costs, etc.	Dominant Firm tending to monopoly	Dominant Firm tending to monopoly

We have so far studied – at some length – i. The costs column; and ii. the Homogeneous good column.

Summary of the table & the Economics of the Internet: i. “Competitive forces” will dominate in the homogeneous good column especially when there are no decreasing AC considerations – market will be very competitive on prices, quality, and innovations. Competition will be much more than in conventional offline markets. ii. A mix of “Market segmentation” and “Market dominance” will emerge in an oligopolistic set-up for non-homogeneous goods. When there is market dominance, the forces will be stronger than in conventional markets. iii. Cost Advantage will lead to market dominance (bottom row). Here the driving force will be no different than in conventional markets.

This lecture will analyze competitive forces – based on Dutta (chap. 5) and Shapiro-Varian (chap. 4)

2. Homogeneous Information Goods – Bertrand Competition

Information goods – anything that can be digitized; stock quotes, magazines, newspapers, books, movies, videos, music, historical archives, Econ. of the internet lecture notes, etc. Recall outstanding characteristic: MC of production (near) zero but (potentially) large fixed costs. In fact, MC of distribution is also (near) zero on internet (unlike conventional markets).

Bertrand analysis for oligopoly. Profits (= Revenue) for a firm that is (one of several) lowest-priced in market = market share x price. Profits from undercutting to [price – 0.01] = full market x [price – 0.01]. Latter more profitable if additional revenue (additional market share x [price – 0.01]) compensates for loss in revenue on existing market share (market share x 0.01). Note this is more likely to happen if original market share low (and additional market share high) or the required price cut is low (relative to the price). E.g., if P = \$10, original market share is s% then undercutting more profitable if $9.99 > 10s$, i.e., $99.9\% > s$.

Implication – only Nash eq. of Bertrand competition game is price at or near zero. (Exactly zero if price cuts can be arbitrarily small.) Note a very competitive market even if there are very few competitors. Also outcome best for consumers (maximizes consumer welfare = area under a demand curve). Note – not a surprise that so much information on internet is free!

Problem – loss to the original producer of the information whose fixed costs are not covered.

One variant – single producer and legal distributor but many potential copiers; big question: to what extent can copiers legally “copy”?

3. Internet Examples

Examples – where this applies and where it does not;

Does? – internet brokerage (oligopoly?, homog. goods?, price competition?) [Datek, Ameritrade, Merrill], travel agencies [priceline.com, expedia, lowestfare.com], homogeneous good retailers in general ..

Does not – newspapers such as WSJ (non-homog.), universities, ..

Speculations – music and video copies (legal & quality issues), booksellers such as amazon.com (homogeneous?)

4. Homogeneous Information Goods – Perfect Competition with Entry

In general perfect competition incompatible with zero MC since each firm will want to produce excessively. More likely new entrants will enter spotting a profit opportunity and drive profits to zero, price to zero.

5. Marketing Issues/ Solutions (?)

Very little can be done when there are multiple firms selling a truly homogeneous good. But if there is a single firm trying to guard against copying and distribution, then here are some strategies that can be tried:

Give-aways – of teasers or samples or first chapters etc. E.g. – software (McAfee Virus scan, Adobe PDF, Linux ...),

Complementarities – give-aways of complementary products. E.g.

Liberal licensing policies – trade-off between attracting more first customers versus second customers. E.g. software (Adobe photoshop, Microsoft OS)

6. Policy Issues

Patent and copyright issues – not same as conventional markets? Enforceability a problem.

Subsidy of information generation – gene sequencing information e.g.

Stability of market – entry should be facilitated.