

Unilateral Refusals to Deal and Technological Tying in Markets for Systems

Richard Gilbert
Professor of Economics
University of California at Berkeley

Competition Policy Research Center 5th Open Seminar

Tokyo, 20 September 2005

Refusals to Deal Can Take Many Forms

- Simple refusal to deal
- Sell or license at a non-competitive price
- Sell or license an essential system component only as a bundle with other system components
- Condition the sale or license of an essential system component on the requirement to purchase other system components (tying)
- Design an essential component so that it works best when used with system components supplied by the owner of the essential component (technological tying)

A Brief Review of U.S. and E.U. Legal Opinions Relating to Refusals to Deal

Some U.S. Enforcement Actions Holding that Unilateral Refusal to Deal is Not an Antitrust Violation

Data General Corp. v. Grumman Systems Support, (1st Circuit, 1994)

The desire of an IP owner to be the exclusive user of its original work is a *presumptively legitimate business justification* for a refusal to license to competitors.

Verizon Communications Inc v. Law Offices of Curtis V. Trinko, LLP,
(Supreme Court, 2004)

The denial of interconnection services to rivals, by itself, does not fall within existing exceptions to the general rule that *federal antitrust law does not require firms, including monopolists, to cooperate with competitors*.

Some U.S. Enforcement Actions Holding that Unilateral Refusal to Deal is Not an Antitrust Violation

In re Independent Service Organizations Antitrust Litig., (Federal Circuit, 2000)

Federal Circuit held that Xerox was not obliged to sell patented parts and license diagnostic software required to service its copiers, noting that while “intellectual property rights do not confer a privilege to violate the antitrust laws”...“*In the absence of any indication of illegal tying, fraud (on) the Patent and Trademark Office, or sham litigation, the patent holder may enforce the statutory right to exclude others from making, using, or selling the claimed invention free from liability under the antitrust laws.*”

Unilateral Refusals to Deal: Some Other U.S. Enforcement Actions

MCI Communications Corp. v. ATT, (7th Circuit, 1983)

ATT's denial of interconnections without a “legitimate business or technical reason” held to violate Section 2 of the Sherman Act.

Aspen Skiing Co. v. Aspen Highlands Skiing Corp., (Supreme Court, 1985)

Affirming the judgment of a Section 2 violation where a monopolist ski company discontinued its long-standing practice of cooperating with a competitor to offer a multi-day ski pass.

Image Tech Servs. v. Eastman Kodak Co., (9th Circuit, 1997)

Overtaken summary judgment where Kodak refused to supply independent service organizations with (patented) parts and software.

Unilateral Refusals to Deal: Some Other U.S. Enforcement Actions

United States v. Microsoft Corp., (D.C. Circuit, 2001)

“Microsoft’s primary copyright argument borders upon the frivolous. The company claims an absolute and unfettered right to use its intellectual property as it wishes. . . . That is no more correct than the proposition that use of one’s personal property, such as a baseball bat, cannot give rise to tort liability.” The issue in *United States v. Microsoft* was not whether Microsoft could refuse to license its copyrighted operating system at all, *but what limits could Microsoft place on the use of its software by its licensees, original equipment manufacturers, in light of Microsoft’s monopoly position in operating systems for Intel-compatible PC’s.*

Legal Principles in U.S. Refusal to Deal Cases

- Essential facilities doctrine exists
 - But substantially weakened by recent cases
- Refusal to deal can be anticompetitive if conditions are imposed that threaten competition in a different market
 - E.g., A refusal to license a product unless licensee agrees not to deal with a competitor
 - But see the Federal Circuit’s opinion in *In re Independent Service Organizations Antitrust Litig.*

Unilateral Refusals to Deal: Some E.U. Case Law

Magill TV Guide, O.J. L 78/43 (1989); affirmed in *RTE and ITP v. Commission*, ECR I-743 (1995)

Three TV broadcasters refused to license copyrights in program listings to Magill TV Guide Ltd. Each broadcaster published a weekly guide for its programs. Magill published a comprehensive weekly guide. European Commission compelled a license. Upheld by Court of First Instance (1991) and European Court of Justice (1995). The ECJ held that "...the exercise of an exclusive right by the proprietor may, in exceptional circumstances, involve abusive conduct." The three such exceptional circumstances present in *Magill* are: (1) *the refusal to license the copyrighted material prevented the appearance of a new product in a secondary market for which there was potential demand*; (2) *there was no objective justification for this refusal*; and (3) *the copyright holder would be able to dominate the secondary market of weekly television guides by excluding all competition in that market*.

Unilateral Refusals to Deal: Some E.U. Case Law

NDC Health/IMS Health, (Commission Decision, 2003)

Refusal to license copyrighted data was an abuse of dominant position. Compulsory license appropriate where there is no objective basis for the refusal to license and data is indispensable to competing in the relevant market.

Microsoft, (Commission Decision, 2004)

Refusal to supply technical information to competitors in the work group server operating systems market necessary for software interoperability was an abuse of Microsoft's dominant position in the PC operating systems market. The case also included allegations that Microsoft illegally bundled its Windows Media Player product with its Windows PC operating system. Remedies imposed included fines, restrictions on Microsoft's practice of bundling its Media Player into Windows and disclosure of all technical data required for other programs to fully interoperate with Windows.

Some E.U. Enforcement Actions Holding that Unilateral Refusal to Deal is Not an Antitrust Violation

Tierce Ladbroke v. Commission, (ECR II-923, 1997)

Belgium betting establishment sought access to broadcasts of French horse races. Relief rejected by Commission and Court of First Instance. CFI held that the refusal to supply must concern “a product or service which was either essential for the exercise of the activity in question, in that there was no real or potential substitute ..., or was a new product whose introduction might be prevented...” These requirements were not demonstrated.

Bronner v. Mediaprint, (ECR I-7791, 1998)

Refusal to deal was not an abuse of dominance because it did not eliminate all competition in the relevant market and was not without objective justification.

Legal Principles in E.U. Refusal to Deal Cases

- Essential facilities doctrine appears to have significant scope in the E.U.
- Refusal to deal can be an abuse of dominant position if it
 - prevents the emergence of a secondary market for which there is potential demand
 - no objective justification for the refusal to deal
 - eliminates competition in a relevant market

Technological Tying as a Refusal to Deal

C.R. Bard v. M3 Sys., Inc., (Federal Circuit, 1998)

Bard held patents on a biopsy gun and on needles used with the gun to take tissue samples. Bard redesigned the gun and needle assembly to be incompatible with the needles sold by M3 Systems. Federal Circuit upheld a district court verdict that Bard had engaged in predatory conduct to exclude competition from M3 Systems.

- But limited guidance from this case

U.S. v. Microsoft Corp., (D.C. Circuit, 2001)

Court of Appeals vacated district court's finding of per se liability for Microsoft's tying of the Windows operating system and Internet Explorer browser, and remanded the case for evaluation under the rule of reason

- DOJ and several states settled. District court compelled non-settling states to accept roughly the same terms.

Economic Effects of Refusals to Deal

- Microsoft and the Internet browser wars
 - Claim 1: Bundling Windows and Internet Explorer foreclosed competition from more better browsers such as Netscape Navigator.
 - Claim 2: Bundling was harmless because Internet Explorer was a better product.
- I show that ex post studies of product quality do not resolve these different claims

Unilateral Refusals to Deal: Economic Arguments

- “One Monopoly Rent”
 - No incentive to deny access if firm can charge the monopoly price for a system component
- What if?
 - incentives to charge different prices to different users, but consumers can arbitrage price differences; or
 - price of component is regulated

Technological Tying and Price Discrimination

- Suppose there are two types of customers:
 - Customers who demand a system, and are willing to spend up to \$100 for the essential component to use in the system
 - Customers who have stand-alone uses for the essential component, and are willing to pay up to \$50
- If Firm 1 attempts to charge different prices, system customers would arbitrage by buying the component for \$50 and combining it with other system components
- Technological tying can solve this:
 - Sell a system with an implicit price of \$100 for the essential component
 - Sell the essential component as a stand-alone product for \$50
 - Customers can't arbitrage, because the stand-alone product is designed so that it does not work with other components except when purchased as part of a system

Market Structure

- System comprised of two components A and B
 - Systems require one unit of each component
- Firm 1 is a monopoly supplier of component A at predetermined price, w
- Firm 1 and Firm 2 compete to supply systems (alternatively, compete to supply component B)
 - Price competition with quality-differentiated systems, and
 - Quality competition with R&D
- M identical consumers each demand one system
 - With network effects, results extend to markets with some consumer heterogeneity

Key Assumptions

- Firm 2 is a more efficient supplier of systems than Firm 1
 - Firm 2's quality is higher than Firm 1's when they both invest at the same level
- Price of the essential component, w , is less than the pure monopoly price, \bar{w}
 - We examine market outcomes conditional on the price of the essential component
 - Motivation is price discrimination or other factors that cause Firm 1 to sell the component at prices other than the price that extracts all of the available rent from Firm 2

Some Related Literature

- Economides, Nicholas (1998), “The Incentive for Non-Price Discrimination by an Input Monopolist,” *International Journal of Industrial Organization*
- Choi, Jay Pil, Gwanghoon Lee, and Christodoulis Stefanadis (2003), “The Effects of Integration on R&D Incentives in Systems Markets,” *Netnomics*
- Farrell, Joseph and Michael Katz (2000), “Innovation, Rent Extraction, and Integration in Systems Markets,” *Journal of Industrial Economics*

Questions We Ask

- ✓ How does the market structure affect innovation incentives?
- ✓ Does ex post system quality measure the most efficient supplier of systems?
- ✓ Does Firm 1 have an incentive to use technological tying to foreclose Firm 2?
- ✓ Is technological tying necessary for foreclosure?
- ✓ Is welfare enhanced if Firm 1 could not sell systems?

Product Improvement Game

Each firm has an initial quality level z_i

Firms choose quality z_i by investing an amount r_i in product improvement. Investment raises quality level to

$$q(r_i) = z_i + z(r_i)$$

Efficient investment in R&D by firm i maximizes

$$(z_i + z)M - r(z)$$

Implies optimal investment: z^M

Product Improvement Game

Price of essential
component A

(w)



Firms invest (r_1, r_2)

determines qualities (q_1, q_2)



Competition determines
system prices

(P_1, P_2)



Market division

Equilibrium Outcomes of the Product Improvement Game (in pure strategies)

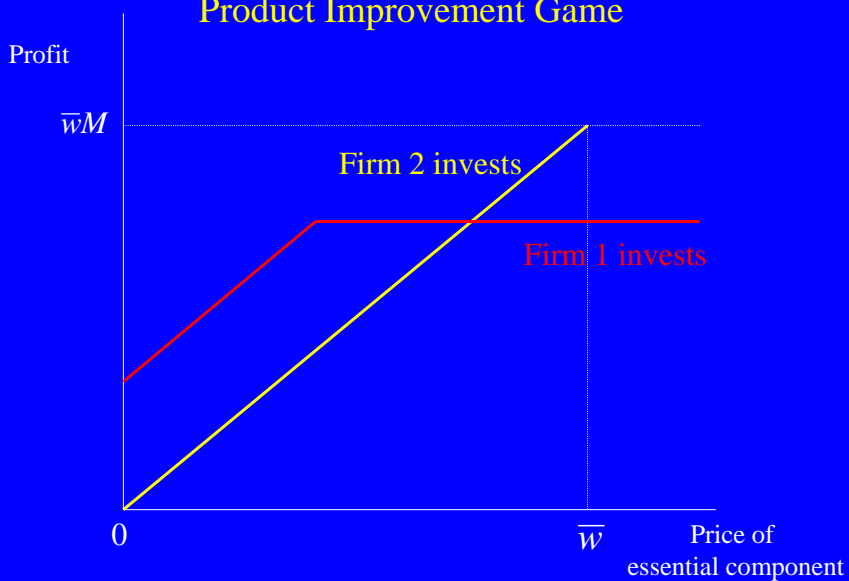
For every value of w :

- There is an equilibrium in which Firm 2 buys the essential component from Firm 1, invests in quality improvement and sells systems to all customers. Firm 1 does not invest.

This equilibrium is efficient given Firm 2's assumed initial quality advantage

- (ii) If R&D is sufficiently costly, there is a second equilibrium in which Firm 1 invests in quality improvement and sells systems to all customers. Firm 2 does not invest.

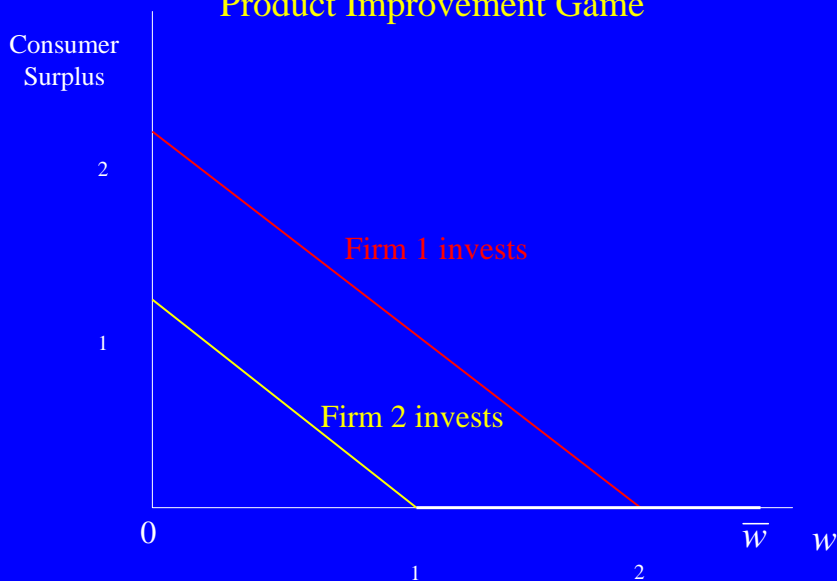
Firm 1's Profit in the Product Improvement Game



Welfare Implications of the Product Improvement Game

- Total economic surplus is always higher when the more efficient firm (Firm 2) invests
- Consumer surplus is higher when the less efficient Firm 1 invests if $w < \bar{w}_2$
 - Firm 2 disciplines Firm 1's price when $w < \bar{w}_2$;
 - Firm 1 disciplines Firm 2's price when $w < \bar{w}_1$;
 - Pricing discipline is greater for Firm 2 ($\bar{w}_2 > \bar{w}_1$). Hence the quality-adjusted price is relatively lower when Firm 1 invests.
 - Both equilibria leave consumers with no surplus when $w > \bar{w}_2$

Consumer Surplus in the Product Improvement Game



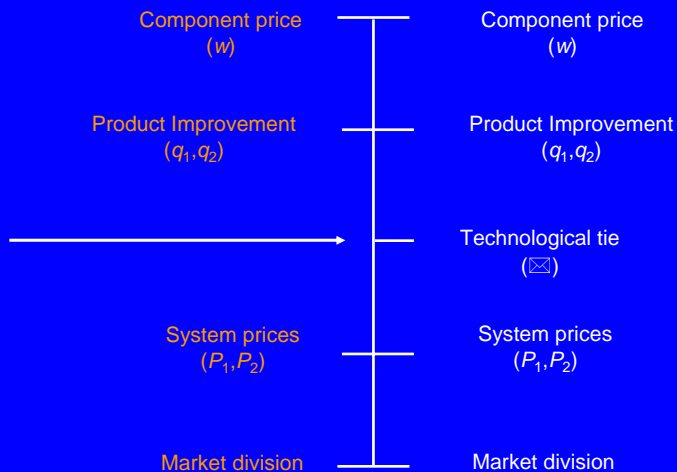
Technological Tying Game

Same as product improvement game, except:

After firms invest to improve their products, Firm 1 can take a (costless) action that degrades the quality of Firm 2's system by an amount δ , large enough that Firm 2 cannot compete.

Product Improvement Game

Technological Tying Game



Equilibrium Outcomes of the Technological Tying Game (in pure strategies)

- (i) If w is small:
 - Firm 1 invests, forecloses Firm 2 with a technological tie and serves the entire market
 - Firm 2 does not invest
- (ii) For intermediate values of w :
 - Firm 1 invests and serves the entire market, but does not impose a technological tie
 - Firm 2 does not invest
- (iii) If w is large:
 - Firm 2 invests and serves the entire market
 - Firm 1 does not invest, sells the essential component to Firm 2

Technological Tying Can Foreclose Competition with No Evidence of Anticompetitive Behavior

For intermediate values of w :

- the component price forecloses Firm 2 if it does not invest; hence no need to impose a technological tie in this case
- Firm 1 would impose a technological tie to foreclose competition from Firm 2 if it does invest
- Consequently, Firm 2 does not invest, and technological tying is not observed

Welfare Results in the Technological Tying Game

- The ability of Firm 1 to impose a technological tie lowers total economic welfare whenever the product improvement game yields an equilibrium in which the more efficient Firm 2 invests
- Consumer surplus is zero for all values of w in the technological tying game
 - Either technological tying or a high component price w eliminates Firm 2 as a potential competitor when Firm 1 invests;
 - a high component price w eliminates Firm 1 as a potential competitor when Firm 2 invests

Summary and Cautionary Notes

- In this model, technological tying lowers consumer welfare and lowers total welfare relative to the efficient equilibrium of the product improvement game
- But we cannot conclude that a prohibition against technological tying is desirable
 - There can be other equilibria in which both firms invest with a probability less than one. Technological tying may *improve* welfare relative to these equilibria of the product improvement game by avoiding redundant investment.
 - If technological tying were prohibited, Firm 1 could choose a different price for the essential component, with different welfare effects

Summary and Cautionary Notes

- Technological tying allows the owner of the essential component to price discriminate. Price discrimination can enhance welfare by making a product available to customers who would not purchase it otherwise.
- We assumed that the owner of the essential input was the less efficient supplier of systems. If the owner is more efficient, an obligation to sell or license would lower welfare.
- We assumed that technological tying was costless
- We are exploring implications of technological tying in markets that are not “winner-take-all”