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The Logic & Limits of the "Exceptional Circumstances Test" in Magill and IMS Health

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Abstract

In this Article, we show that, in contrast to the Commission's balancing approach in Microsoft, the ECJ's narrow construction of the obligation to license IP under Article 82 of the EC Treaty is based on sound economics and constitutes appropriate public policy. The set of "exceptional circumstances" listed in Magill and IMS Health constitutes a reasonable implementation of the optimal legal standard for the assessment of refusals to licence IP: modified per se legality. In the IP context, an obligation to make property available is a requirement for compulsory licensing. The ECJ test limits compulsory licensing to those situations in which the prospective social benefits of licensing are large, while the negative effects of reducing the incentives to innovate are small. The ECJ test ensures that intervention is restricted to cases where the intervention is still likely to increase social welfare. The Commission's test in Microsoft, being a balancing test, does not. As noted by Professor Gerardin, "balancing ex ante vs. ex post efficiencies is obviously a very difficult process, which even the most sophisticated economists may find daunting. The risk of mistaken decisions is therefore high."

THE LOGIC & LIMITS OF THE "EXCEPTIONAL CIRCUMSTANCES TEST" IN *MAGILL* AND *IMS HEALTH*

*Christian Ahlborn, David S. Evans & A. Jorge Padilla**

I. *INTRODUCTION*

The European Court of Justice ("ECJ") has established in two prominent cases — *Radio Telefis Eireann (RTE) & Independent Television Publications Ltd. (ITP) v. Commission*("*Magill*")[1] and *IMS Health GmbH & Co. OHG v. NDC Health GmbH & Co. KG*[2] ("*IMS Health*") — that a refusal to license an intellectual property ("IP") right by a dominant firm constitutes an abuse in "exceptional circumstances."[3] A refusal to license is abusive if: (a) the requested IP is indispensable to compete; (b) the undertaking which requested the license intends to offer products or services not offered by the IP owner and for which there is potential consumer demand; (c) the refusal is such as to reserve to the IP owner a secondary market by eliminating all competition on that market; and (d) the refusal is not justified by objective considerations.[4] In *Microsoft*,[5] the European Commission appears to have

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1. Joined Cases C-241/91 P & C-242/91 P, [1995] E.C.R. I-743 [hereinafter *Magill*] (upholding Commission Decision No. 89/205/EEC, O.J. L 78/43 (1989)); Radio Telefis Eireann v. Comm'n, Case T-69/89 [1991] E.C.R. II-485; Indep. Television Publ'ns Ltd. v. Comm'n, Case T-76/89 [1991] E.C.R. II-575).

2. Case C-418/01, [2004] E.C.R. __ (ECJ Apr. 29, 2004) (2004 ECJ CELEX LEXIS 192) [hereinafter *IMS Health*].

3. *See id.* ¶ 35.

4. *See id.* ¶ 52. The extent to which conditions are necessary or sufficient will be discussed in Parts II and V below.

5. Commission Decision No. COMP/C-3/37.792/EEC (Eur. Comm'n Mar. 24, 2004) [hereinafter *Microsoft Decision*].

adopted a different standard — one where licensing is mandated if: (1) the requested IP is "necessary" for a competitor to "viably stay in the market;" (2) the refusal represents a reduction in "the level of disclosures;" (3) "there is a risk of elimination of competition" in the secondary market; (4) the refusal to supply "has the consequence of stifling innovation in the impacted market;" and (5) the refusal is not objectively justified because "on balance" the possible negative impact of an order to supply on the dominant firm's incentives to innovate is outweighed by its positive impact on the level of innovation of the whole industry.[6]

In this Article, we show that, in contrast to the Commission's balancing approach in *Microsoft*, the ECJ's narrow construction of the obligation to license IP under Article 82 of the EC Treaty is based on sound economics and constitutes appropriate public policy. The set of "exceptional circumstances" listed in *Magill* and *IMS Health* constitutes a reasonable implementation of the optimal legal standard for the assessment of refusals to licence IP: modified *per se* legality.[7] In the IP context, an obligation to make property available is a requirement for compulsory licensing. The ECJ test limits compulsory licensing to those situations in which the prospective social benefits of licensing are large, while the negative effects of reducing the incentives to innovate are small. The ECJ test ensures that intervention is restricted to cases where the intervention is still likely to increase social welfare. The Commission's test in *Microsoft*, being a balancing test, does not. As noted by Professor Gerardin, "balancing ex ante vs. ex post efficiencies is obviously a very difficult process, which even the most sophisticated economists may find daunting. The risk of mistaken decisions is therefore high."[8]

The protection of IP and the struggle against the unlawful exercise of a dominant position serve complementary purposes: striking a balance between *ex ante* incentives for innovation (dy-

6. *See id.* ¶¶ 779-84.

7. *See* David S. Evans & A. Jorge Padilla, *Designing Antitrust Rules for Assessing Unilateral Practices: A Neo-Chicago Approach*, 72 U. CHI. L. REV. 73 (2005).

8. Damien Geradin, *Limiting the Scope of Article 82 of the EC Treaty: What Can the EU Learn from the U.S. Supreme Court's Judgment in* Trinko *in the Wake of* Microsoft, IMS, *and* Deutsche Telekom ?, COMMON MKT. L. REV. (forthcoming Dec. 2005) (manuscript at 20-21, on file with author). *See also* Derek Ridyard, *Compulsory Access Under EC Competition Law — A New Doctrine of "Convenient Facilities" and the Case for Price Regulation*, 2004 EUR. COMPETITION L. REV. 669, 770 (2004).

namic effects) and *ex post* inefficiencies from the exercise of market power (static effects). The pragmatic resolution of this trade-off is in the first instance the subject of IP law. As Advocate-General Jacobs noted in *Oscar Bronner GmbH & Co. KG v. Mediaprint Zeitungs-und Zeitschriftenverlag GmbH & Co. KG*:

> Where such exclusive [IP] rights are granted for a limited period, that in itself involves a balancing of the interest in free competition with that of providing an incentive for research and development and for creativity.[9]

But then, when should the antitrust authorities and courts compel a dominant firm to license its IP? As a matter of economics, compulsory licensing should be restricted to those situations in which the prospective social benefits of licensing are sufficiently large as to offset the negative effects of forced sharing on the incentives to innovate and create new intellectual property. Unfortunately, in practice, it is most often impossible to balance with any degree of certainty the welfare-increasing and welfare-decreasing effects of this sort of intervention. A more pragmatic answer is, therefore, that intervention must be limited to those circumstances where: (1) the pro-competitive effects (*ex post* efficiencies) of compulsory licensing are large; and (2) the disincentive effects (*ex ante* inefficiencies) of the obligation to license are small or non-existent.

Economic theory tells us that the pro-competitive effects of compulsory licensing are largest when: (a) the requested IP is indispensable to compete; (b) the refusal to deal causes the complete foreclosure of the market; and (c) the refusal prevents the emergence of markets for new products for which there is potentially substantial demand. Economic theory also tells us that the disincentive effects of compulsory licensing are less when the products to be developed by the licensors are not close substitutes of those of the IP holder. But these are precisely the "exceptional circumstances" defined by the Court in *Magill* and *IMS Health*: indispensability, complete foreclosure, and the new product screen. In those cases, the Court laid out a set of cumulative

9. Opinion of Advocate General Jacobs, Oscar Bronner GmbH & Co. KG v. Mediaprint Zeitungs-und Zeitschriftenverlag GmbH & Co. KG, Case C-7/97, [1998] E.C.R. I-7791, I-7812, ¶ 62. *See* Opinion of Advocate General Poiares Maduro, KPN Telecom BV v. Onafhankelijke Post en Telecommunicatie Autoriteit (OPTA), Case C-109/03, [2004] E.C.R. __, ¶ 39 (ECJ July 14, 2004) (2004 ECJ CELEX LEXIS 548).

circumstances that are sufficient to conclude that a refusal to license by a dominant undertaking constitutes abusive behavior:

> It is clear from the case-law that, in order for the refusal by an undertaking which owns a copyright to give access to a product or service indispensable for carrying on a particular business to be treated as abusive, it is sufficient that three *cumulative* conditions be satisfied, namely, that that refusal is preventing the emergence of a *new product* for which there is potential consumers demand, that it is unjustified and such as to exclude any competition on a secondary market.[10]

Contrary to the opinion of some commentators who have chastised the ECJ's new product screen as "problematic,"[11]leading to "undesirable consequences,"[12] or lacking "solid economic foundation,"[13] we regard it as a fundamental component of the ECJ's exceptional circumstances test. In fact, a major contribution of this Article is to provide an economic framework for determining whether a product is "new" in the context of the exceptional circumstances test set out by the ECJ in *Magill* and *IMS Health*. We say a product is "new" for the purposes of the implementation of the ECJ test if it satisfies a potential demand by meeting the needs of consumers in ways that existing products fail to do. That is, a new product *expands* the market at current prices by bringing in consumers whose demands were not previously satisfied. This definition, which is consistent with the Court's rulings, yields consistent and unambiguous predictions, and is based on sound economics — follows the logic of the error-cost framework used in this Article to demonstrate the virtue of the ECJ's "exceptional circumstances test."

The remainder of this Article is organized as follows. In Part II, we review the relevant EC case law and discuss the ECJ's "exceptional circumstances test" and the Commission's *Microsoft* test for assessing refusals to license IP. In Part III, we present the decision-theoretic framework used in this Article to assess the optimality of alternative legal standards for assessing refusals to license. Part IV briefly summarizes the economics of innovation and IP protection, and provides the economic basis for identify-

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10. *IMS Health*, [2004] E.C.R. at __, ¶ 38 (LEXIS) (emphasis added).
11. *See, e.g.*, Geradin, *supra* note 8 (manuscript at 12).
12. *Id.* (manuscript at 18).
13. *See* Ridyard, *supra* note 8, at 670.

ing the appropriate legal standard for assessing refusals to license. In Part V, we draw on the previous analysis to discuss the likely welfare implications of the ECJ's "exceptional circumstances test" and the Commission's test in *Microsoft*, respectively. In Part VI, we move to the other side of the Atlantic to compare the treatment of refusals to license in the United States and the European Union. Part VII concludes.

II. *THE RELEVANT EC CASE LAW*

The ECJ has considered two types of refusal to deal cases. Some of those cases, such as *Istituto Chemioterapico Italiano S.p.A. & Commercial Solvents Corp. v. Commission* ("*Commercial Solvents*"),[14] *United Brands Co. v. Commission*,[15] and *Centre belge d'études de marché — Télémarketing (CBEM) v. SA Compagnie luxembourgeoise de télédiffusion (CLT)* ("*Telemarketing*"),[16] involved a failure to continue to supply an existing customer. The main conclusion from that strand of cases is that the interruption of previous supplies may constitute an abuse if: (1) the company holds a dominant position; (2) the input withheld is indispensable to compete; (3) the refusal risks eliminating all competition on the part of the customers whose requests are denied; and (4) there is no objective justification.[17]

In a few other cases, such as *Volvo v. Veng*,[18] *Magill*,[19] *Bronner*,[20] and *IMS Health*,[21] the Court considered refusals to allow a third party to use its intellectual or physical property for the first time. Overall, the Court has shown significant restraint and deference to the property rights of the dominant enterprise.[22] From those cases it is clear that: (1) companies, including domi-

14. Joined Cases C-6/73 & C-7/73, [1974] E.C.R. 223.

15. Case C-27/76, [1978] E.C.R. 207.

16. Case C-311/84, [1985] E.C.R. 3261.

17. Opinion of Advocate-General Jacobs, Synetairismos Farmakopoion Aitolias & Akarnanias (Syfiat) v. Glaxosmithkline AEVE, Case C-53/03, ¶¶ 53-60 (2003) (pending) [hereinafter *Syfiat Opinion*].

18. Case 238/87, [1988] E.C.R. 6211.

19. Joined Cases C-241/91 P & C-242/91 P, [1995] E.C.R. I-743.

20. Case C-7/97, [1998] E.C.R. I-7791, I-7817.

21. Case C-418/01, Case C-418/01, [2004] E.C.R. __ (ECJ Apr. 29, 2004) (2004 ECJ CELEX LEXIS 192).

22. *See Syfait Opinion*, Case C-53/03 (2003) (pending). Hence EC competition law distinguishes between a duty to *continue* to deal (i.e., in cases of an existing customer relationship) and a duty to deal (i.e., in the absence of an existing customer relationship). The threshold to establish an obligation to continue to deal is significantly lower,

nant companies, have the right to choose their trading partners;[23] (2) dominant companies might in certain narrow circumstances be obliged to license their intellectual property;[24] and (3) "any obligation to deal pursuant to Article 82 EC can be established only after a close scrutiny of the factual and economic context, and even then only within somewhat narrow limits."[25] Advocate-General Jacobs has made clear that "a dominant undertaking will be obliged to open up its facilities or license its intellectual property rights" only if "some exceptional harm to competition" is shown.[26]

A. *Volvo v. Veng*

The first ECJ judgment regarding compulsory licensing under Article 82 of the EC Treaty was *Volvo v. Veng.* This case concerned the ability of an after-sales service provider to obtain patented parts from a manufacturer. The ECJ ruled that the freedom to refuse to license an IP right was at the core of the subject matter of the exclusive right and concluded that the refusal to license a protected design, even in return for a reasonable royalty, was not in itself abusive.[27] However, the ECJ did not adopt a *per se* legality standard. It took the view that the exercise of an exclusive IP right could be in breach of competition law if it involved additional abusive conduct, such as the arbitrary refusal to supply spare parts to independent repairers, the fixing of prices at an unfair level, or the decision to cease producing spare parts for a particular car model, even though many cars of that model were still in circulation.[28]

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even though there is no clear justification for this distinction as a matter of economics. *See id.*

23. *See id.*; *see also* Opinion of Advocate-General Jacobs, *Bronner*, [1998] E.C.R. I-7791.

24. *See Syfait Opinion*, Case C-53/03 (2003) (pending), ¶ 66.

25. *Id.* ¶ 53.

26. *Id.* ¶ 66.

27. *See* Volvo v. Veng, Case 238/87, [1988] E.C.R. 6211, 6225, ¶ 8.

28. *See id.* at 6225, ¶ 9; *see also* Consorzio Italiano della Componentistica di Ricambio per Autoveicoli v. Regie Nationale des Usines Renault, Case 53/87, [1988] E.C.R. 6039, 6049, ¶ 4, [1990] 4 C.M.L.R. 265 [hereinafter *CICRA*] (holding that the mere fact of obtaining protective rights in respect of designs for spare parts for cars was not an abuse of a dominant position). Note that the *Volvo* and *CICRA* judgments were delivered on the same day. *See Volvo*, [1988] E.C.R. at 6211; *see also CICRA*, [1988] E.C.R. at 6039.

B. *Magill*

The ECJ has required compulsory licensing of an IP right only once, in its 1995 judgment in *Magill*.[29] Broadcasters in the Republic of Ireland — BBC, RTE, and ITP — each published weekly television ("TV") guides containing details of their own TV programs. Magill wanted to publish all TV programs in a comprehensive weekly TV guide and requested TV listing information from the three broadcasters. The broadcasters claimed their TV listings were protected by copyright and refused to make the information available.[30] The European Commission ordered the three broadcasters to provide Magill with the information it had requested.[31] The Court of First Instance ("CFI") upheld the Commission's Decision that the three broadcasters had abused the dominant positions they held on the markets for their TV program schedules.[32]

The ECJ upheld the CFI judgment. The Court established that a dominant firm refusing to license its IP engages in abusive behavior only "in exceptional circumstances."[33] The Court regarded the circumstances in *Magill* as sufficiently exceptional. First, the information was indispensable for the production of a comprehensive TV program guide covering all the TV channels, a new type of product for which there was a clear and unsatisfied consumer demand.[34] Second, by refusing to provide essential information, the TV companies were monopolizing the separate market for TV program magazines.[35] And third, there was no objective justification for such refusal.[36]

C. *Bronner*

While *Bronner* did not concern the licensing of intellectual property (but rather the case of a newspaper distribution system), the case is nevertheless of overarching importance due to the seminal opinion of Advocate General Jacobs, which provides an overall framework for refusal to deal cases and also addresses

29. *Magill*, Joined Cases C-241/91 P & C-242/91 P, [1995] E.C.R. I-743.
30. *See id.* at I-811-12, ¶¶ 7-10.
31. *See id.* at I-812, ¶ 12.
32. *See id.* at I-825, ¶ 57.
33. *See id.* at I-823, ¶ 50.
34. *Id.* at I-824, ¶¶ 52.
35. *See id.* at I-824, ¶ 56.
36. *Id.* at I-824, ¶ 55.

the specific issue of intellectual property. In this case, the Court was asked to establish the circumstances under which a newspaper group (Mediaprint), with a substantial share of the market for daily newspapers, refusing access to its home-delivery network would engage in abusive conduct. The Court concluded that such behavior would only be an abuse if it was likely to eliminate all competition in the daily newspaper market, because it was indispensable to compete in such a market, inasmuch as there was no actual or potential substitute for that home-delivery scheme.[37]

In his opinion, Advocate-General Jacobs recognized that "the right to choose one's trading partners and freely to dispose of one's property are generally recognized principles in the laws of the Member States, in some cases with constitutional status."[38] He noted that incursions on this fundamental right to choose one's own trading partners "require careful justification."[39] As a result, any interference with this freedom to contract on the grounds of competition law required a "careful balancing of conflicting considerations."[40] Further, he observed that,

> In the long term it is generally pro-competitive and in the interest of consumers to allow a company to retain for its own use facilities which it has developed for the purpose of its business. For example, if access to a production, purchasing or distribution facility were allowed too easily there would be no incentive for a competitor to develop competing facilities. Thus while competition was increased in the short term it would be reduced in the long term. Moreover, the incentive for a dominant undertaking to invest in efficient facilities would be reduced if its competitors were, upon request, able to share the benefits. Thus the mere fact that by retaining a facility for its own use a dominant undertaking retains an advantage over a competitor cannot justify requiring access to it.[41]

According to Advocate-General Jacobs, it was "unsatisfactory

37. *See* Oscar Bronner GmbH & Co. KG v. Mediaprint Zeitungs-und Zeitschriftenverlag GmbH & Co. KG, Case C-7/97, [1998] E.C.R. I-7791, I-7805-06, ¶¶ 41-44.

38. Opinion of Advocate-General Jacobs, *Bronner*, [1998] E.C.R. I-7791, I-7811, ¶ 56.

39. *Id.*

40. *Id.* at I-7811, ¶ 57.

41. *See id.*

. . . to focus solely on [a firm's] market power on the upstream market and conclude that its conduct in reserving to itself the downstream market is automatically an abuse."[42] For him, the key question was whether the refusal to deal "entail[ed] elimination or substantial reduction of competition to the detriment of consumers in both the short and the long term."[43] Turning to the issue of compulsory licensing, Advocate General Jacobs pointed to the "special circumstances of [the *Magill*] case which swung the balance in favor of an obligation to license,"[44] namely the "prevent[ion] of a much needed new product" and the dubious nature of the IP right at stake.[45]

Interpreting *Magill* in light of Advocate-General Jacob's Opinion in *Bronner* suggests that a refusal to license can be viewed as an abuse of a dominant position and can lead to a compulsory license as a remedy *if*, in addition to the four general conditions in refusal to deal cases,[46] a refusal to license would prevent the emergence of a new product for which there is clear and unsatisfied consumer demand.

D. *IMS Health*

The issue of compulsory licensing and the precise scope of the "exceptional circumstances" giving rise to an obligation to license IP came under further scrutiny recently in *IMS Health*.[47] IMS Health, with input from its client pharmaceutical enterprises, developed a sales data method based on a segmentation of the German territory into 1860 zones or "bricks."[48] The ad-

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42. *Id.* at I-7811, ¶ 58.

43. *Id.* at I-7812, ¶ 61.

44. *Id.* at I-7812-23, ¶ 63.

45. *Id.*

46. Namely that: (1) the refusal to license would eliminate *all* competition in the market for which the license is desired; (2) the market for which the license is desired differs from the market in which the dominant firm exploits the IP right; (3) the dominant firm has no objective justification for its refusal; and (4) there is no actual or potential alternative to the IP right in the market for which the license is desired and the IP right is therefore indispensable for competing in that market. *See, e.g.*, Valentine Korah, *The Interface Between Intellectual Property and Antitrust: The European Experience*, 69 ANTITRUST L.J. 801, 815-19 (2001); John Temple Lang, Intellectual Property-Related Abuses Under Article 82 EC Treaty — New Legal Approaches to New Issues, Presentation at the Fordham University Annual Conference on International Intellectual Property Law and Policy (2003).

47. IMS Health GmbH & Co. OHG v. NDC Health GmbH & Co. KG, Case C-418/01, [2004] E.C.R. __, ¶ 17 (ECJ Apr. 29, 2004) (2004 ECJ CELEX LEXIS 192).

48. *Id.* at __, ¶ 4 (LEXIS).

vantage of this "1860 brick structure" was that it enabled sales data to be reported on the basis of small geographic areas while ensuring that data protection laws were followed. IMS Health claimed that the 1860 brick structure was protected by copyright, and thus resisted attempts by two competitors to break into the market using the same, or a very similar structure, by bringing actions against them for infringement of copyright and by refusing to grant them a license.[49] The competitors in question alleged that IMS Health's refusal to license was an abuse of its dominant position, with the result that it was impossible for new competitors to enter or stay in the market.[50]

IMS Health landed in Luxembourg in two incarnations. First, the Commission took up the competitors' cause and found that IMS Health had abused a dominant position by failing to license what had become an indispensable industry standard.[51] The Commission took the position that "exceptional circumstances" had been established by the fact that the brick structure had become the *de facto* industry standard, and that IMS was excluding all competition from the market by refusing, without objective justification, to license the structure to competitors.[52]

According to the Commission (in a decision imposing "interim measures" which required IMS Health to license the structure to its competitors), it did not have to establish in this case the prevention of the emergence of a new product to demonstrate "exceptional circumstances."[53] To support this claim, the Commission cited a judgment by the CFI in *Tiercé Ladbroke SA v. Commission,* in which the CFI stated that a refusal to supply could infringe Article 82 where it involved a product or service that was *either* essential in that there was no real or potential substitute, *or* was a new product whose introduction might be prevented despite potential consumer demand.[54]

IMS Health appealed and asked the CFI to suspend the interim measures pending judgment in the appeal.[55] On this

49. *See IMS Health,* [2004] E.C.R. at __, ¶¶ 21, 23, 26 (LEXIS).

50. *See id.* at __, ¶ 27 (LEXIS).

51. *See* Commission Decision No. 01/165/EC, O.J. L 59/18 (2001) [hereinafter NDC Health/IMS Health].

52. *See id.*

53. *See id.* at 18.

54. Case T-504/93, [1997] E.C.R. II-923, II-969, ¶¶ 131-32.

55. *See* NDC Health/IMS Health, O.J. L 59/18 (2001).

point, the President of the CFI ruled in favor of IMS Health and, while not deciding the ultimate issue, was not sympathetic to the Commission's view on the merits.[56] He noted that the Commission's Decision appeared to hinge upon a "non-cumulative interpretation" of the conditions regarded as constituting exceptional circumstances in *Magill*, in that it did not consider the appearance of a new product (on a downstream market) to be essential for the existence of exceptional circumstances.[57] It reminded the Commission that:

> The fundamental rationale of copyright is that it affords the creator of inventive and original works the exclusive right to exploit such works . . . thereby ensuring that there is a reward for the creative effort . . . . To reduce it to a purely economic right to receive royalties dilutes the essence of the right and is, in principle, likely to cause potentially serious and irreparable harm to the rightholder.[58]

The President of the Court found that the interim measures adopted by the Commission — compulsory licensing — imposed a risk of serious and irreparable harm on IMS Health, and that in the balancing of interests (IMS Health's property right interests versus the "public interest" in stronger competition) the interests of IMS Health were paramount, particularly as "it is clear that the public interest invoked by the Commission . . . relates, in substance, primarily to the interest of the applicant's competitors."[59] The Commission withdrew its decision after it said certain developments in the case in German courts eliminated its concerns.[60]

That brings us to the second incarnation of this case. A German court referred to the ECJ three questions on the interpretation of Article 82 of the EC Treaty in the context of IMS Health's refusal to license its brick structure to NDC.[61] In October 2003, Advocate-General Tizzano delivered an advisory opinion that considers several different views on when a refusal to

56. *See* Order of the President of the Court of First Instance, IMS Health Inc. v. Commission, Case T-184/01 R, [2001] E.C.R. II-3193.

57. *See id.*

58. *Id.* II-3249-50, ¶ 125.

59. *Id.* at II-3257-58, ¶ 145.

60. *See* Commission Press Release, Commission Intervention No Longer Necessary To Enable NDC Health To Compete with IMS Health, IP/03/1159 (Aug. 13, 2003).

61. *See* IMS Health GmbH & Co. OHG v. NDC Health GmbH & Co. KG, Case C-418/01, [2004] E.C.R. __, (ECJ Apr. 29, 2004) (2004 ECJ CELEX LEXIS 192).

license IP constitutes an abuse.[62] While the Advocate-General took a different approach than the Commission, he also departed somewhat from what some observers, such as Professor Valentine Korah[63] and Dr. John Temple Lang,[64] considered to be the teachings of *Magill* and *Bronner*. Advocate-General Tizzano endorsed the view that a refusal to license constitutes an abuse only in special circumstances, and that those circumstances are indeed extreme and cumulative:[65] to find abuse, it is not enough that a license be essential for competing in a secondary market or that the refusal eliminate all competition in that market.[66] One still must weigh the benefits of competition against the protection of intellectual property and the "economic freedom of the owner."[67] As Advocate General Tizzano stated:

> [T]he balance may in my view come down in favour of the [protection of free competition] only if the refusal to grant the licence [sic] prevents the development of the secondary market to the detriment of consumers. More specifically, I consider that the refusal to grant a licence [sic] may be deemed abusive *only if* the requesting undertaking does not wish to limit itself essentially to duplicating the goods and services already offered on the secondary market by the owner of the intellectual property right but intends to produce goods or services of a different nature which, although in competition with those of the owner of the right, answer specific consumer requirements not satisfied by existing goods or services.[68]

Advocate General Tizzano thus considered that IMS Health's refusal to license could only be considered abusive if it prevented the emergence of "new" products or services.[69] However, his

62. *See* Commission, Opinion of Advocate-General Tizzano, *IMS Health*, [2004] E.C.R. __ (ECJ Oct. 2, 2003) (2003 ECJ CELEX LEXIS 717).

63. *See generally* Korah, *supra* note 53.

64. *See* John Temple Lang, The Application of the Essential Facility Doctrine to Intellectual Property Rights Under European Competition Law, Presention at the Ecole des Mines de Paris and University of Califonia at Berkely Antitrust, Patent, and Copyright Conference (Jan. 15-16, 2004).

65. *See* Opinion of Advocate-General Tizzano, *IMS Health*, [2004] E.C.R. at __, ¶ 66 (LEXIS).

66. *See id.* at __, ¶ 61 (LEXIS).

67. *Id.* at __, ¶ 62 (LEXIS).

68. *Id.* (emphasis added).

69. *See id.* at __, ¶¶ 62-63 (LEXIS).

view of what might constitute a "new product" in the downstream market could be read rather expansively, because taken literally it could include minor improvements on existing products.

The second incarnation of the *IMS Health* case in Luxembourg concluded with the judgment of the ECJ on April 29, 2004.[70] The Court clearly established that there should be no obligation to license IP rights unless "two different stages of production" can be identified and it is found that "the upstream product is indispensable in as much as for supply of the downstream product."[71] The Court considered that a separate market for IP rights could be defined even in those cases in which the IP holder did not license them and only used them as an input into the development of another product.[72] For example, in the *IMS Health* case, the IP right (the supply of brick-structures) would be the upstream market, and the product that uses that IP right (the data provided by IMS and its competitors to the pharmaceutical companies) would define the downstream market.[73] It does not matter that the holder of the IP right does not generally license it.[74] It is sufficient that there is "the possibility of identifying a separate market," even if none yet exists.[75] Left unqualified, this view could potentially lead to defining separate product markets for many IP rights that are just used as inputs — perhaps critical ones — into products or services that are commercialized successfully. As noted by Professor Damien Geradin, under this standard, "any intellectual property right could 'hypothetically' be marketed as a stand-alone item," and hence potentially subject to an obligation to license, which "would represent a huge disincentive for dominant firms to invest in new production processes that would allow them to gain a competitive advantage vis-à-vis competitors."[76]

As regards the emergence of a new product, the Court concluded that for a refusal to license to be abusive:

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70. *See IMS Health GmbH & Co. OHG v. NDC Health GmbH & Co. KG*, Case C-418/01, [2004] E.C.R. __, (ECJ Apr. 29, 2004) (2004 ECJ CELEX LEXIS 192).

71. *Id.* at __, ¶ 45 (LEXIS).

72. *See id.* at __, ¶ 43 (LEXIS).

73. *See id.* at __, ¶ 42 (LEXIS).

74. *Id.* at __, ¶ 43 (LEXIS).

75. *See id.*

76. *See* Geradin, *supra* note 8 (manuscript at 11).

> [T]he undertaking which requested the license does not intend to limit itself essentially to duplicating the goods or services already offered on the secondary market by the owner of the copyright, but intends to produce new goods or services not offered by the owner of the right and for which there is a potential consumer demand.[77]

This formulation of the "new product screen" is from a literal perspective closer to the original formulation in *Magill* than the formulation used by Advocate-General Tizzano and, more importantly, less likely to be construed expansively. And yet it has been criticized as too vague, not implementable, and lacking economic foundation.[78]

E. *Summing Up: The Exceptional Circumstances Test*

Under the case law of the Community Courts, a refusal to grant access to IP rights which are "indispensable" to compete constitutes an abuse that requires compulsory licensing as a remedy when three conditions hold *cumulatively*: the grant of a license must result in a "new product," the failure to grant that license must "exclude any competition," and the refusal must not be "objectively justified."

1. Indispensability

The ECJ has explained the sorts of economic evidence that is required for establishing indispensability. First, the product or service to which access is requested must be useful for the exercise of the activity in question.[79] Second, "it must be determined whether there are products or services which constitute alternative solutions, even if they are less advantageous . . . ."[80] Furthermore, "it must be established, at the very least, that the creation of those products or services is not economically viable for production on a scale comparable to that of the undertaking which

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77. *IMS Health*, [2004] E.C.R. at __, ¶ 49 (LEXIS).

78. *See* Geradin, *supra* note 8; *see also* Ridyard, *supra* note 8.

79. In *Tiercé Ladbroke*, the refusal was regarded lawful because the requested IP, live pictures of French races, was not indispensable to compete in the relevant market. *See* Tiercé Ladbroke SA v. Commission, Case T-504/93, [1997] E.C.R. II-923, II-936-37, ¶¶ 27-28.

80. *IMS Health*, [2004] E.C.R. at __, ¶ 28 (LEXIS) (citing Oscar Bronner GmbH & Co. KG v. Mediaprint Zeitungs-und Zeitschriftenverlag GmbH & Co. KG, Case C-7/97, [1998] E.C.R. I-7791, I-7806 ¶¶ 43-44).

controls the existing product or service."[81] In short, the ECJ requires the Commission to examine whether the cost of duplicating the allegedly essential facility constitutes a barrier to entry such that "it deters any prudent undertaking from entering the market."[82]

Two observations are in order. First, the key economic question is, therefore, whether the investments required for duplicating the facility to which access is requested would deter entry by a reasonably efficient competitor. Of course, the impact on entry depends on the entrant's expectations about its sales and prices post entry.[83] Bronner, for example, argued that it could not afford replicating the home-delivery system of Mediaprint because of its small distribution.[84] However, Bronner's calculation was incorrect because it relied on an unreasonable assumption regarding its distribution after the introduction of the new home-delivery system.[85] In this respect, the Court clarified:

> For such access to be capable of being regarded as indispensable, it would be necessary at the very least to establish . . . . that it is not economically viable to create a second home-delivery scheme for the distribution of daily newspapers with a circulation comparable to that of the daily newspapers distributed by the existing scheme.[86]

Second, evidence of lack of competition is a necessary but not sufficient condition for a finding of indispensability. As noted by Dr. John Temple Lang, the analysis should focus on whether it is possible for a second substitute facility to be created, and not on whether competitors will in fact make the investment.[87] There may be no competition even when competi-

81. *Id.* at __, ¶ 28 (LEXIS) (citing *Bronner*, [1998] E.C.R. I-7791, I-7807, ¶ 46).

82. *See Bronner*, [1998], E.C.R. I-7791, I-7813-14, ¶ 66.

83. *See generally* Mats A. Bergman, *The Role of the Essential Facilities Doctrine*, 46 ANTITRUST BULL. 403 (2001); Mats A. Bergman, When Should an Incumbent Be Obliged To Share Its Infrastructure with an Entrant Under the General Competition Rules? (Sept. 2003) (unpublished manuscript, on file with Uppsala University), *available at* http://www.nek.uu.se/pdf/wp2003_25.pdf (last visited Mar. 11, 2005).

84. *See* Opinion of Advocate General Jacobs, *Bronner*, [1998], E.C.R. I-7791, I-7814, ¶ 68.

85. *See id.* at I-7814-15, ¶ 69.

86. *Id.* ¶ 46.

87. *See* John Temple Lang, *The Principle of Essential Facilities in EC Competition Law — The Position Since Bronner*, 1 J. NETWORK INDUSTRIES 375, 382 (2000).

tors have access to the inputs required to compete if: (a) their products are regarded as less desirable by consumers according to their own and subjective preferences; or (b) they are particularly inefficient in production.

2. Complete Foreclosure

The Court in *IMS Health* required the refusal to supply result in "excluding *all* competition" in a secondary market.[88] In earlier cases — e.g., *Commercial Solvents* — the Court appeared to apply a weaker standard: the elimination of all competition in the relevant market on the part of the undertaking which requested access.[89] Yet in *Bronner*, the Court clarified that it was necessary to show that supply is indispensable to carry on business on that market,[90] or in other words that the refusal was "such as to exclude any competition on a secondary market."[91]

3. New Product

As we saw above, the ECJ finds that a refusal to grant access to intellectual property constitutes an abuse of Article 82, "where the undertaking which requested the licence . . . intends to produce new goods or services not offered by the owner of the right and for which there is a potential consumer demand."[92] The Court has found that a refusal to grant a license prevented the emergence of a new product only in *Magill* in which, as described in greater detail above, three television stations each provided separate weekly listings of their programs, but there was no weekly television guide that provided consumers with simultaneous access to the television programs of all three.[93] The Court found that the weekly television guide was a new product and that a refusal to grant access to the individual television schedules prevented the emergence of that product for which *there was*

88. *See* IMS Health GmbH & Co. OHG v. NDC Health GmbH & Co. KG, Case C-418/01, [2004] E.C.R. __, __, ¶¶ 38-40 (ECJ Apr. 29, 2004) (2004 ECJ CELEX LEXIS 192) (emphasis added).

89. *See, e.g.*, Istituto Chemioterapico Italiano S.p.A. & Commercial Solvents Corp. v. Commission, Joined Cases C-6/73 & C-7/73, [1974] E.C.R. 223, 250-51, ¶ 25.

90. *See* Opinion of Advocate-Genral Jacobs, *Bronner*, [1998] E.C.R. I-7791, I-7810, ¶ 52.

91. *IMS Health*, [2004] E.C.R. at __, ¶ 38 (LEXIS).

92. *Id.* at __, ¶ 49 (LEXIS).

93. *See supra* notes 29-46 and accompanying text (discussing the *Magill* case).

evidence of potential demand.[94]

The Court did not clarify in *IMS Health* how much novelty is required for a product to be "new." As with markets, the boundaries between products are not precise. It is therefore a matter of judgment whether a product is a "new" one. That can be seen by reference to *Magill*. BBC published a weekly magazine that contained its own television listings.[95] Would a firm be offering a new product if it provided the BBC listings in a different colour than the BBC offered them? Would a firm be offering a new product if it provided the BBC listings in a different format than the BBC offered? Would a firm be offering a new product if it inserted the BBC's television listing (but not the other television listings) as part of its own weekly magazine designed to compete with the BBC's magazine? We doubt that most observers would consider these to be new products, although these "improvements" in the BBC television listings would result in product variants that did not exist before. Moreover, if such trivial changes create "new products," the test is meaningless as it will never be constraining. We will come back to this issue in Section 5 below, where we set out an economic framework for determining whether a product is "new."

4. Objective Justification

One of the conditions listed by the Court in *IMS Health* for a refusal to be abusive is that it "is not justified by objective considerations."[96] The Court went somewhat further in *Bronner* by requiring that "such refusal was incapable of being objectively justified."[97]

F. *The New Balancing Test: Microsoft*

On March 24, 2004, the Commission issued a decision in its case against Microsoft.[98] The Commission concluded, *inter alia*, that Microsoft had abused its dominant position in the PC oper-

94. *See Magill*, Joined Cases C-241/91 P & C-242/91 P, [1995] E.C.R. I-743, at I-823-24, ¶ 52 (emphasis added).

95. *See id.* at I-811, ¶ 7.

96. *See IMS Health*, [2004] E.C.R. at __, ¶¶ 38-40, 52 (LEXIS).

97. *See* Oscar Bronner GmbH & Co. KG v. Mediaprint Zeitungs-und Zeitschriftenverlag GmbH & Co. KG, Case C-7/97, [1998] E.C.R. I-7791, I-7805, ¶ 41.

98. *See Microsoft Decision, supra* note 5, Commission Decision No. COMP/C-3/37.792/EEC.

ating systems market by refusing to provide interoperability information necessary for competitors to be able to effectively compete in the so-called workgroup server operating systems market.[99] Besides fining Microsoft for this abuse, the Commission imposed on Microsoft the remedy of compulsory licensing or forced disclosure of its proprietary information.[100] Specifically, Microsoft is to draw up detailed lists of protocol specifications to enable third parties to interconnect with Microsoft Windows client and server operating systems so that a non-Microsoft operating system could replace a Windows server without loss of functionality.[101]

On June 7, 2004, Microsoft appealed the decision of the European Commission before the CFI.[102] Microsoft sought the annulment of the decision or, in the alternative, annulment of or a substantial reduction in the fine.[103] The CFI's judgment on this application is pending. On June 25, 2004, Microsoft also applied for suspension of the Commission's remedies.[104] This last application was dismissed by order of the President of the CFI, Judge Vesterdorf.[105] His opinion concluded that the evidence adduced by Microsoft was not sufficient to show that the remedies imposed by the Commission would cause serious and irreparable harm to Microsoft in case the Court resolves in its favor in the main action.[106]

As noted by the President of the CFI, "this case raises the question [*inter alia*] whether the conditions laid down by the Court in *IMS Health* . . . are necessary or merely sufficient."[107] This question will have to be resolved when Microsoft's application for annulment is finally resolved. The Commission contends that they are merely sufficient. For the Commission:

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99. *See id.* ¶ 779-81.

100. *See id.* ¶ 998-99.

101. *See id.* ¶ 999.

102. *See* Order of the President of the Court of First Instance of 26 July 2004, Microsoft v. Commission, Case T-204/04 R, [2004] E.C.R. __(July 26, 2004) (2004 ECJ CELEX LEXIS 390), ¶ 11.

103. *See id.*

104. *See id.* ¶ 13.

105. *See* Order of the President of the Court of First Instance of 22 December 2004, Microsoft v. Commission, Case T-204/04 R; ¶ 478 (CFI Dec. 22, 2004) (not yet reported).

106. *See id.* ¶¶ 461-76.

107. *Id.* ¶ 206.

> There is no persuasiveness to an approach that would advocate the existence of an exhaustive checklist of exceptional circumstances and would have the Commission disregard *a limine* other circumstances of exceptional character that may deserve to be taken into account when assessing a refusal to supply.[108]

The Commission argues that in each case it must analyze the "entirety of the circumstances" surrounding a specific refusal,[109] and that a refusal may be abusive, even though the conditions hitherto laid out by the Community Courts are not satisfied.[110] Indeed, the criteria used in its Decision are different from the ones laid out by the Court in *IMS Health* (although the Commission takes the view that they are consistent with *IMS Health*, assuming that the *IMS Health* conditions are sufficient but not necessary). In *Microsoft*, licensing is mandated *if*: (1) the requested IP is "necessary" for a competitor to "viably stay on the market;[111] (2) the refusal represents a reduction in "the level of disclosures;"[112] (3) "there is a risk of elimination of competition" in the secondary market;[113] (4) the refusal to supply "has the consequence of stifling innovation in the impacted market;"[114] and (5) the refusal is not objectively justified, because "on balance, the possible negative impact of an order to supply on (the dominant firm's) incentives to innovate is outweighed by its positive impact on the level of innovation of the whole industry."[115]

Are the "exceptional circumstances" in *IMS Health* necessary or sufficient?[116] This is a complex question on which the case

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108. *Id.* ¶ 555.

109. *Id.* ¶ 558. The Commission also refers to the judgment in *Micro Leader Bus. v. Commission*, Case T-198/98, [1999] E.C.R. II-3989, II-4010-11, ¶¶ 56-57 to conclude that "the factual situations where the exercise of an exclusive right by an intellectual property right-holder may constitute an abuse of a dominant position cannot be restricted to *one* particular set of circumstances." *Id.* ¶ 557.

110. *See* Order of the President of the Court of First Instance, *IMS Health*, [2004] E.C.R. at __, ¶ 206.

111. *See Microsoft Decision*, *supra* note 5, ¶ 779, Commission Decision No. COMP/C-3/37.792/EEC.

112. *Id.* ¶ 780.

113. *Id.* ¶ 781.

114. *Id.* ¶ 782.

115. *Id.* ¶ 783.

116. It should be noted that the concept of necessary condition has some limits when applied to Article 82 EC: conditions are necessary for a finding of abuse *in certain types of situations*. That is, the concept of "necessary condition" is relative to a certain set of cases.

law provides only limited guidance. It is true that the Court held in *IMS Health* that the new product condition, the elimination of all competition condition, and the lack of objective justification condition are three "sufficient" cumulative conditions.[117] But if one reads that paragraph with caution, it appears that the indispensability condition is not only sufficient but also necessary for a finding of abuse.[118] Furthermore, the Court stated, "the refusal . . . may be regarded as abusive *only* where the undertaking which requested the license does not intend to limit itself essentially to duplicating the goods or services already offered on the secondary market by the owner of the copyright."[119] This suggests that the new product condition may also be necessary for a finding of abuse.

Whether the exceptional circumstances in *IMS Health* are necessary may or may not affect the final outcome of the *Microsoft* case, but this is not the relevant question from a policymaking perspective. The crucial questions are: (1) Is it desirable to have a rule that specifies the set of necessary and sufficient conditions under which a refusal to license IP should be regarded as abusive? (2) Are the exceptional circumstances laid out by the Court in *IMS Health* those necessary and sufficient conditions? Or, (3) is it preferable to rely on a balancing approach to the assessment of refusals to license which pays close attention to individual circumstances, as the Commission proposed in *Microsoft*? We will provide answers to these questions in Section 5 below.

III. *DESIGNING AN "OPTIMAL" LEGAL RULE — AN ERROR-COST FRAMEWORK*

How could we determine what is the most appropriate standard for the antitrust assessment of refusals to license IP by a dominant firm? Or, in other words, what should be the criteria used to compel the licensing of a dominant firm's IP? In this Article, we apply a simple error-cost methodology for designing

117. *See* IMS Health GmbH & Co. OHG v. NDC Health GmbH & Co. KG, Case C-418/01, [2004] E.C.R. __, __, ¶ 38 (ECJ Apr. 29, 2004) (2004 ECJ CELEX LEXIS 192).

118. *See id.* ("It is clear from that case-law that, in order for the refusal by an undertaking which owns a copyright to give access to a *product or service indispensable for carrying on a particular business* to be treated as abusive, it is sufficient that three cumulative conditions be satisfied") (emphasis added).

119. *Id.* ¶ 49.

optimal antitrust standards that is based on Bayesian decision theory and economic knowledge.[120] This method is structured in two stages. First, economic theory and evidence are used to assess the cost and likelihood of errors resulting from condemning welfare-increasing business practices or condoning welfare-reducing ones. Second, based on that assessment, a legal rule that minimizes the expected cost of intervention taking into account the possibility of legal error is selected from a spectrum of standards ranging from *per se* legality to *per se* illegality, including the rule of reason.

In Part IV, we draw on the economics of intellectual property rights to determine the expected costs and benefits of compulsory licensing as a remedy in refusal to deal cases brought under Article 82 EC. The economic literature on innovation is fairly clear: compulsory licensing, regardless of whether the information is protected by IP law or simply business secrets, is likely to reduce the incentives to innovate. Successful innovations, however, can bring great increases in prosperity. Hence, the right to exclude stimulates the creation of IP for the benefit of society. However, this comes at a well-known cost. The right to exclude underlying any IP right generates high rewards only if its holder can raise the price above the competitive level. Compulsory licensing encourages short-term competition and thus brings prices down to their competitive level.

In Part V, we consider the welfare properties of five alternative legal standards: *per se* legality, *per se* illegality, rule of reason, modified *per se* legality, and modified *per se* illegality. We identify which of those standards maximizes long-run consumer welfare by minimizing the expected cost of intervention when legal errors are possible. Under a *per se* illegality (legality) standard a refusal to license IP would always (never) be considered abusive. A rule of reason standard would balance the costs and benefits of intervention given the specific facts of the case and, thus,

120. *See* Evans & Padilla, *supra* note 7 (supplying information from which this section borrows); *see also* Frank H. Easterbrook, *The Limits of Antitrust*, 63 TEX. L. REV. 1 (1984) [hereinafter Easterbrook, *The Limits of Antitrust*] (providing the basis for this methodology); Richard A. Posner, *An Economic Approach to Legal Procedure and Judicial Administration*, 2 J. LEGAL STUD. 399 (1973). *See generally* C. Frederick Beckner III & Steven C. Salop, *Decision Theory and Antitrust Rules*, 67 ANTITRUST L.J. 41 (1999); Keith N. Hylton & Michael Salinger, *Tying Law and Policy: A Decision-Theoretic Approach*, 69 ANTITRUST L.J. 469 (2001) (offering recent applications).

would compel licensing when the benefits outweigh the costs of intervention. Under a modified *per se* legality (illegality) standard, a refusal to license is considered legal (illegal) except in "exceptional circumstances."

IV. *THE ECONOMICS OF IP RIGHTS: A BRIEF OVERVIEW*

Why do societies grant and enforce IP rights? What is the impact of compulsory licensing on the incentives for innovation? What are the costs and benefits of the increased protection of intellectual property rights? When is compulsory licensing likely to increase long-run consumer welfare in the context of the refusal to deal cases discussed in Part 2 above? This Part aims to answer these questions.

A. *IP Rights and Innovation*

Economists have come to understand the rational basis for granting and protecting IP rights.[121] An IP right, like all other property rights, gives its holder the ability to exclude others from using that property and thereby enables the holder to appropriate the value of the property for himself. That seldom matters much because most IP rights are not valuable. In fact, most patents are worthless[122] and many books go begging for readers.[123] Some IP rights, however, are immensely valuable: the right to exclude results in monopoly prices and profits. IP rights exist to make great riches possible and thereby stimulate innovation and creation.

The right to exclude has a direct positive impact on the incentives for innovation. Innovators must receive a reward for

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121. *See* DENNIS CARLTON & JEFFREY M. PERLOFF, MODERN INDUSTRIAL ORGANIZATION ch. 16 and references therein (4th ed. 2005).

122. *See* Mark Lemley, Rational Ignorance at the Patent Office (Berkeley L. & Econ., Working Paper No. 16, 2000) (estimating that only five percent of issued patents are licensed to third parties for royalties). In 1999-2003, 260,000 patents, or more than one sixth of renewable patents, expired because of non-renewal. *See* United States Patent and Trademark Office, Performance and Accountability Report Fiscal Year 2003, *available at* http://www.uspto.gov/web/offices/com/annual/2003/060401_table1.html (last visited Feb. 22, 2005). Roughly 40% of all U.S. patents are maintained though the entire 20-year period. *See* Patents Granted by Trilateral Office, *at* http://www.uspto.gov/web/tws/tsr99/43pat.htm (last visited Feb. 22, 2005).

123. Most new books published by a traditional publisher do not sell more than 5,000 copies. *See* BRIAN HILL & DEE POWER, THE MAKING OF A BESTSELLER: SUCCESS STORIES FROM AUTHORS AND THE EDITORS, AGENTS, AND BOOKSELLERS BEHIND THEM 65 (2005).

their risky and costly investments. This is why society generally allows, and at times even enables, firms to have market power.[124] Innovations that require great investments must have high rewards. Getting a new drug to market, for example, costs about U.S.$800 million in capitalized costs for pre-regulatory approval research and development ("R&D") and U.S.$95 million for post-approval R&D.[125] A Hollywood film costs approximately U.S.$80 million to make and market.[126] Investors can only recover the sunk costs incurred at the R&D stage if they can charge prices that exceed the incremental costs of production when the innovation is ready to be marketed.

More importantly, rewards must loom large because most efforts that could be subject to IP protection do not succeed. Most inventive efforts fail. Many of the failures are invisible: inventors who do not make something that could get a patent, much less a valuable one, songwriters whose tunes are never played, and artists whose works are never seen. The failures we do see, however, illustrate the fleeting nature of success. Only ten percent of released American movies earn a profit.[127] Only one in approximately 435 drugs considered for production is marketed.[128] Inventors and investors will, therefore, only take risks if they expect that the rewards for the few successes will compensate for the many failures.

The right to exclude has another important effect on the incentives for innovation. Without this right, people would tend to wait for others to incur the costs and risks of innovation and then free ride on the resulting creations. In the extreme case, individuals wait for others to invest and, as a result, investment terminates, innovation ceases,[129] and the economy stagnates.[130]

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124. Note that an IP right creates a legal right to exclude the use of that right over a period of time, but does not necessarily give rise to a dominant position because its scope (or breadth) may not span the entire relevant product market.

125. *See* Joseph A. DiMasi et al., *The Price of Innovation: New Estimates of Drug Development Costs*, 22 J. HEALTH ECON. 151 (2003).

126. *See Mutating*, ECONOMIST, Apr. 26, 2003. The success rate for European movies is apparently even lower.

127. *See A Fine Romance*, ECONOMIST, Mar. 31, 2001, at 71.

128. *See* Henry Grabowski, *Patents, Innovation and Access to New Pharmaceuticals*, 5 J. INT'L ECON. L. 849 (2002); *see also* Joseph A. DiMasi et al., *Research and Development Costs for New Drugs by Therapeutic Category: A Study of the U.S. Pharmaceutical Industry*, 7 PHARMACOECON. 152 (1995).

129. This is a variant of the well-known tragedy of the commons. *See* Garrett Hardin, *The Tragedy of the Commons*, 162 SCIENCE 1243, 1244 (1968).

B. *The Costs and Benefits of IP Protection*

Economics, law, and policy have long recognized the relevance of two important and related distinctions in thinking about the role of IP rights.[131] The first distinction is *ex ante* versus *ex post.* After IP has been created, it is often most efficient to make it widely available — *ex post,* full dissemination and disclosure is optimal. If that approach is adopted as a general policy, however, the IP will not be created in the first place — *ex ante,* the ability to exclude and limit dissemination and disclosure is optimal for the creation of intellectual property. The second, related distinction is *short run* versus *long run.* In the short run, it is possible to make consumers better off by making IP freely available since there are benefits but no costs. In the long run, making IP freely available will likely make consumers worse off because innovation will decline.

Successful innovations can and do benefit society substantially. Modern economic research has documented that new products result in remarkable increases in social welfare.[132] The traditional supply and demand diagram helps to illustrate this effect (see Figure 1 below). When a new product is introduced, the value created is the area between the demand curve (D) and the cost curve (S).[133] In other words, each unit of output has a

130. *See generally* PHILIPPE AGHION & PETER HOWITT, ENDOGENOUS GROWTH THEORY (1997).

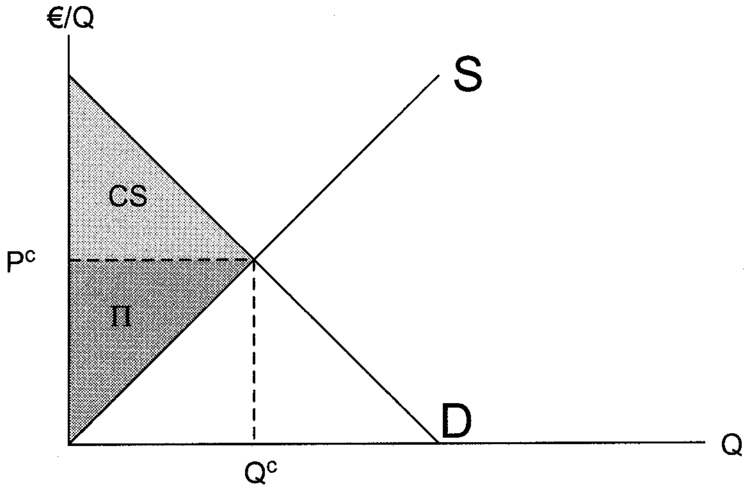
131. For an economic perspective, see WILLIAM D. NORDHAUS, INVENTION, GROWTH, AND WELFARE: A THEORETICAL TREATMENT OF TECHNOLOGICAL CHANGE 70-90 (1969); *see also* Carl Shapiro, *Navigating the Patent Thicket: Cross Licenses, Patent Pools, and Standard-Setting,* 1 INNOVATION POL'Y & ECON. 119 (2001). From a legal side, see Verizon Communications Inc. v. Law Offices of Curtis V. Trinko, LLP, 540 U.S. 398 (2004); *see also* Opinion of Advocate-General Jacobs, Oscar Bronner GmbH & Co. KG v. Mediaprint Zeitungs-und Zeitschriftenverlag GmbH & Co. KG, Case C-7/97, [1998] E.C.R. I-7791.

132. *See, e.g.,* Jerry A. Hausman & Gregory K. Leonard, *The Competitive Effects of a New Product Introduction: A Case Study,* 50 J. INDUS. ECON. 237, 262 (2002) (finding that the introduction of Kimberly-Clark bath tissue increased consumer welfare by seven percent of total bath tissue expenditures); Amil Petrin, *Quantifying the Benefits of New Products: The Case of the Minivan,* 110 J. POL. ECON. 705, 726-27 (2002) (finding that the introduction of the minivan increased total welfare).

133. *See, e.g.,* DAVID LAIDLER & SAUL ESTRIN, INTRODUCTION TO MICROECONOMICS 230-31 (3d ed. 1989). There are a variety of technical aspects of this analysis that we are ignoring here. One we should note, though. The social surplus shown in the diagram is approximately correct when the good is truly new in the sense that it has no substitutes. More generally, as people shift away from substitutes to the new good, there is a reduction in social surplus generate by those goods. That reduction offsets the social

social value that is the difference between the value shown by the demand curve and the cost of producing it. The overall social value of a product innovation is the sum of those differences: the area CS + π.

FIGURE 1: SOCIAL VALUE OF NEW PRODUCT



In Figure 1, the competitive equilibrium is at (Pc,Qc) and it is located at the intersection of the supply curve, S, which is given by the incremental costs of production, and the demand curve D. Social value equals the sum of consumer surplus (CS) and producer surplus (π).

In a seminal study, Professor Jerry Hausman calculated social value.[134] He found that a new cereal — one made by adding apple and cinnamon to an existing cereal — created value of U.S.$78.1 million per year in the United States.[135] A new drug has a greater social value. The value of saving or improving lives dwarfs the seemingly exorbitant costs of some drugs.[136] Simi-

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surplus shown in the figure. The corollary of this is that goods which are merely variations on existing goods generate proportionally less social surplus than novel goods.

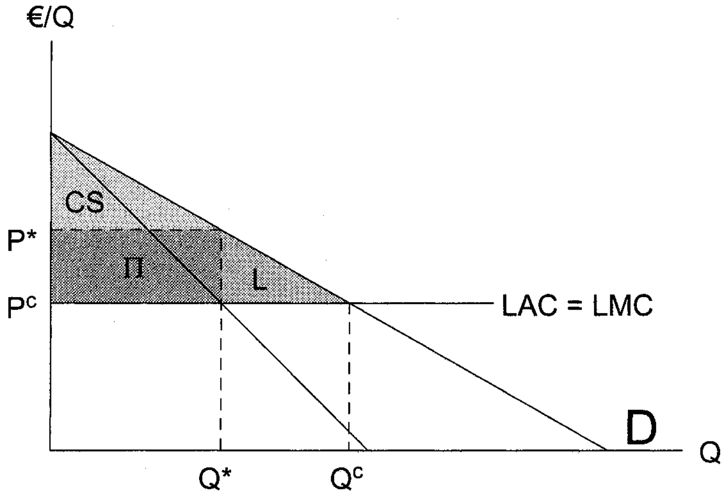
134. *See* Jerry A. Hausman, *Valuation of New Goods Under Perfect and Imperfect Competition, in* THE ECONOMICS OF NEW GOODS (Timothy F. Bresnahan & Robert J. Gordon eds., 1997).

135. *See id.*

136. The estimated social value of increases in life expectancy due to advances in medical research from 1970 to 1990, was estimated to amount to U.S.$2.8 trillion per year. Kevin M. Murphy & Robert H. Topel, *The Economic Value of Medical Research, in* MEASURING THE GAINS FROM MEDICAL RESEARCH: AN ECONOMIC APPROACH (Kevin M. Murphy & Robert H. Topel eds., 2003).

larly, technical change — due to product and process innovations — has resulted in rapid increases in productivity and improved standards of living around the world.[137]

FIGURE 2: MONOPOLY-LOSS TRIANGLE



As in Figure 1, the competitive equilibrium in Figure 2 is at (Pc,Qc). The monopoly outcome results in a higher price and lower quantity given by (P*,Q*). The result is a deadweight loss of welfare to society given by L, commonly known as the monopoly-loss triangle. π is the monopoly profit and CS is consumer surplus. The negative impact of monopoly power on consumer welfare is equal to the sum of the supracompetitive profits (π) and the deadweight loss (L).

The social rewards from fostering new products come at a well-known cost. An IP right is effective only if its holder can raise price above the competitive level by restricting output below the competitive level. The result is the well known "monopoly-loss triangle," given by the value that consumers do not get from the output the monopolist does not produce[138] (see area L in Figure 2 above). For example, one can imagine the value that

137. *See* Rolf Fare et al., *Productivity Growth, Technical Progress, and Efficiency Change in Industrialized Countries*, 84 AM. ECON. REV. 66 (1994); *see also* STEVEN GLOBERMAN, INDUS. CAN. RESEARCH PUBLN'S PROGRAM, LINKAGES BETWEEN TECHNOLOGICAL CHANGE AND PRODUCTIVITY GROWTH 23 (2000).

138. *See, e.g.*, *id.*

society loses when pharmaceutical companies charge prices for pills that far exceed the cost of manufacturing those pills.

Policymakers must decide whether or not the gains from stimulating investment in innovation truly outweigh the losses from allowing a monopoly to persist. Industrial societies have balanced these considerations and reached a consensus — differences remain mainly at the margin.[139] We can summarize this consensus as follows:

First, societies rely on a number of "social" or "policy" instruments to stimulate intellectual creations. These include prizes, honors, social prestige, and government funding. Copyrights, patents, and trade secrets fill out the arsenal in promoting creations because strong IP rights are needed to stimulate innovation and investment.

Second, governments have made complex economic policy judgments regarding IP rights. They have chosen to enforce those rights through laws and institutions. The logic behind this choice is that innovations — and the new and improved products and processes they entail — are extraordinarily valuable. While some may bemoan the high cost of pharmaceuticals, the fact is that in the absence of patent protection, few of these drugs would have been produced, put through clinical trials, and marketed to doctors.[140] Yet, as observed above, these drugs have brought almost incalculable benefits in extending the lifes-

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139. Some degree of convergence in IP systems and laws has resulted from international treaties. *See, e.g.*, Berne Convention for the Protection of Literary and Artistic Works, Sept. 9, 1886, *as last revised* July 24, 1971, , S. Treaty Doc. No. 99-27 (1986), 828 U.N.T.S. 221; Patent Cooperation Treaty, June 19, 1970, 28 U.S.T. 7645; Patent Law Treaty, June 1, 2000, 39 I.L.M 1047; Agreement on Trade-Related Aspects of Intellectual Property, Apr. 15, 1994, Marakesh Agreement Establishing the World Trade Organization, Annex 1C, 31 LEGAL INSTRUMENTS ÷ RESULTS OF THE URUGUAY ROUND, 33 I.L.M. 81 (1994) [hereinafter TRIPS Agreement]. Signatories to these treaties are required to comply with standards guaranteeing some level of IP protection. *See id.*

140. *See, e.g.*, Henry Grabowski, Patents and New Product Development in the Pharmaceutical and Biotechnology Industries (July 2002) (unpublished manuscript, on file with Duke University), *at* http://www.econ.duke.edu/Papers/Other/Grabowski/Patents.pdf (last visited Apr. 22, 2005); Henry Grabowski, *Patents, Innovation and Access to New Pharmaceuticals*, 5 J. INT'L ECON. L. 849 (2002); Edwin Mansfield, *Patents and Innovation: An Empirical Study*, 32 MGMT. SCI. 173 (1986); Testimony of the Biotechnology Industry Organization on Competition and Intellectual Property Law and Policy in the Knowledge E-based Economy Before the Federal Trade Commission and the Department of Justice (Feb. 26, 2002), *at* http://www.bio.org/ip/action/ftc022002.pdf (last visited Apr. 22, 2005).

pan and improving the quality of life.[141] The same conclusion may be drawn for many modern industries — IP protection has brought tremendous value.

Third, governments have defined limits to the protection afforded by the law. Grants of IP protection come with strings attached. For example, third parties can use patented inventions twenty years after the patent filing.[142] Similarly, copyrighted material eventually can be reproduced and distributed at no cost (although the duration for which exclusive rights should be protected is hotly debated).[143] Furthermore, there is a vast category of "intellectual stuff" for which it is not possible to obtain property rights. Some creations of the mind may be so valuable from a social standpoint that we do not want to restrict their use. It is not possible to obtain protection for theorems or discoveries of general laws of nature.[144] That is why Einstein could get patent protection for his many refrigerator innovations but not for the general theory of relativity. One also must be careful not to assign property rights unnecessarily; some ideas are there for the taking because they are obvious. For example, McDonald's could not protect the fast-food franchise idea, nor Wal-Mart the idea of having efficient superstores.

C. *Compulsory Licensing in Refusal to Deal Cases*

Suppose a dominant firm in an upstream market refuses to license its intellectual property to a third party with whom it competes in a downstream market. Under which conditions would its welfare be increasing enough to compel the dominant firm to license its IP?[145] From the previous Sections, it should be clear that compulsory licensing has three main (and opposing)

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141. *See* Murphy & Topel, *supra* note 136.

142. *See* 35 U.S.C. § 154 (2005); *see also* TRIPS Agreement, *supra* note 163.

143. *See* 17 U.S.C. §§ 302-303 (2005); *see also* John Tehranian, *Et Tu, Fair Use?: The Triumph of Natural-Law Copyright*, 38 U.C. DAVIS L. REV. 465, 489-92 (2005).

144. *See* 35 U.S.C. § 101 (2005).

145. Throughout this Article the term "welfare" refers to social welfare (the sum of consumer and producer surpluses) — the measure economists mainly advocate for evaluating competition policy, although the majority of economists' analysis is not dependent on using social welfare or the narrower measure of consumer welfare typically used by courts and regulatory authorities. *See generally* MASSIMO MOTTA, COMPETITION POLICY: THEORY AND PRACTICE (2004). *See* Oliver E. Williamson, *Economies as an Antitrust Defense: The Welfare Tradeoffs*, 58 AM. ECON. REV. 18 (1968); *see also* Richard Schmalensee, *Sunk Costs and Antitrust Barriers to Entry*, 94 AM. ECON. REV. 466 (2004).

effects on welfare. First, compulsory licensing reduces the incentives to innovate in the long run. As Professor Massimo Motta states, "[i]f antitrust agencies tried to eliminate or reduce market power whenever it appeared, this would have the detrimental effect of eliminating firms' incentives to innovate."[146] The impact on social welfare of a fall in the incentives for innovation is potentially very large and equal to the reduction in total surplus (area π + CS in Figure 2) that results from a lower number of product and process innovations. A lower rate of innovation means less profits (area π) and lower consumer surplus (area CS). This negative effect will be largest when the products that competitors manufacture when having access to the requested IP are close substitutes to those of the IP holder.

Second, compulsory licensing may increase competition in the short term, thus eliminating the deadweight loss from market power (area L in Figure 2) and increasing consumer welfare in the short term (area π in Figure 2). This effect will be largest when the degree of market power derived from the exercise of the IP right is greatest.[147] That is, when the right to exclude embodied in the IP right leads to the exclusion of all competition in the downstream market, possibly because access to that IP is indispensable to carry on business on that market.

Finally, compulsory licensing may also have a positive effect on consumer welfare in the long run if it facilitates the development of new products for which there is potential demand — in other words, it increases the ability of third parties to innovate.

Which of the two effects is quantitatively most important? In particular, are the dynamic effects of compulsory licensing likely to outweigh the static effects? In principle, it is close to impossible to balance accurately the welfare-increasing and welfare-decreasing effects of compulsory licensing, or for that matter of any unilateral business practice.[148] As a first approximation, this involves comparing areas CS + π (the welfare cost of compulsory licensing) and π + L (the welfare benefit of compulsory licensing), or simplifying areas CS and L, which is no doubt

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146. MOTTA *supra* note 145, at 64.

147. When that is the case, the difference between the price that would prevail under compulsory licensing (P^c in Figure 2) and the price without compulsory licensing (P^* in Figure 2) is largest, and hence consumer surplus ("CS") is smallest.

148. *See* David S. Evans, *How Can Economists Help Courts Design Competition Rules? An E.U. and U.S. Perspective*, WORLD COMPETITION (forthcoming 2005).

a complex exercise. However, we can state the following two propositions:

PROPOSITION 1. *In general, in the absence of any positive effects on innovation, compulsory licensing is likely to have an overall negative impact on welfare — i.e., area CS is likely to be larger than area L.*

Proposition 1 states that if compulsory licensing does not have a positive dynamic effect on innovation, then it is likely to be socially harmful. This is true for the following reasons. First, the available evidence indicates that innovators do not generally appropriate the entire social value of their innovations, and that most of the value of the new products and processes are sooner or later passed on to consumers.[149] Professor William Nordhaus of Yale University, using data from the U.S. non-farm business sector, finds that innovators are able to capture about 2.2% of the total surplus from innovation.[150] These findings imply, first, that the private incentives to innovate are likely to be lower than the socially optimal, but also that the degree of market power *de facto* enjoyed by innovators is rather limited (having said that, intervention is likely to focus on firms with a certain degree of market power). Consequently, compulsory licensing is likely to depress innovation from levels that are inefficiently low, without any significant pro-competitive effect in the short-term. In terms of Figure 2, this suggests that area CS is likely to be large and area L small.

Second, area L may also be small because compulsory licensing may not only reduce welfare in the long run, but also in the short term.[151] Compulsory licensing may: (a) facilitate entry of inefficient producers in the downstream market; (b) promote licensing arrangements that discourage potential entrants to develop products that are sufficiently different from those of the IP holder, thus reducing product variety in the marketplace; and (c) encourage licensing arrangements that help companies coordinate their respective commercial policies, leading to higher

149. *See* WILLIAM D. NORDHAUS, SCHUMPETERIAN PROFITS IN THE AMERICAN ECONOMY: THEORY AND MEASUREMENT 4 & n.6 (Cowles Found. Discussion Paper No. 1457, Apr. 2004), *available at* http://cowles.econ.yale.edu/P/cd/d14b/d1457.pdf (last visited Apr. 22, 2005) (discussing the effect of new products and processes on consumers).

150. *See id.* at 22.

151. *See* Richard J. Gilbert & Carl Shapiro, *An Economic Analysis of Unilateral Refusals To License Intellectual Property*, 93 PROC. NAT'L ACAD. SCI. USA 12749, 12750 (1996) (arguing for the reduction of welfare in the short-run).

prices.[152] In this last respect, as noted by then Professor and now Judge Frank Easterbrook,[153] a contradiction exists between the primary antitrust goal of protecting and promoting aggressive competition on the merits and a policy that imposes an obligation to deal with competitors in order to achieve a level playing field, irrespective of differences in business acumen, skill or foresight.

PROPOSITION 2. *The forced disclosure of IP is* most *likely to increase long-run consumer welfare when (a) the requested IP is indispensable to compete, (b) the refusal to license causes the exclusion of all competition from the downstream market, (c) the refusal prevents the emergence of markets for new products for which there is substantial demand, and (d) the products to be developed by the licensees are sufficiently differentiated from those of the IP right holder, e.g., because they satisfy needs that the existing products failed to address.*

Conditions (a) and (b), which as a matter of economics are two faces of the same coin, ensure that the short-term welfare loss resulting from a refusal to license is relatively large (area L is large). Condition (c) implies that the refusal has a long-run cost as well as a short-term cost, and condition (d) says that the long-run cost of compulsory licensing — the reduction in the incentives to innovate — is relatively low. When (c) and (d) fail to hold, Proposition 1 applies and, therefore, compulsory licensing should be presumed harmful: the obligation to deal is bound to have a profound adverse effect on the incentives for innovation and the creation of IP, which is likely to outweigh any possible social benefit in the short term.

When conditions (a) to (d) hold, then compulsory licensing has both positive and negative effects and in principle may be beneficial. However, it is still unclear whether the negative effects of compulsory licensing on the incentives to innovate are outweighed by the positive effects on the incentives and ability of third parties to innovate. In other words, even if conditions (a) to (d) hold, compulsory licensing may still be welfare reducing.

On the other hand, compulsory licensing may be welfare increasing even if (a) and (b) fail to hold, provided that condi-

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152. *See* James Gibson, *Re-Reifying Data,* 80 NOTRE DAME L. REV. 163, 228-29 (2004) (discussing the effects of compulsory licensing).

153. *See* Frank Easterbrook, *On Identifying Exclusionary Conduct,* 61 NOTRE DAME L. REV. 972 (1986).

tions (c) and (d) are satisfied.[154] This is because the positive effects of compulsory licensing on third-party innovation may offset any harm from reduced incentives to innovate. However, one would expect no unilateral refusal to license when (c) and (d) hold. In those circumstances the IP holder is likely to be better off by licensing its IP and reaping some of the rents generated by the new products at no cost for its own existing business. In other words, when (c) and (d) hold,[155] there is likely to be a mutually acceptable license with some potential licensees since total industry profits when there is a license exceed total industry profits when the IP holder refuses to license.

Not surprisingly, most economists are skeptical about the desirability of compulsory licensing:

> An obligation to deal does not necessarily increase economic welfare even in the short run. In the long run, obligations to deal can have profound adverse incentives for investment and for the creation of intellectual property. Although there is no obvious economic reason why intellectual property should be immune from an obligation to deal, the crucial role of incentives for the creation of IP is reason enough to justify skepticism toward policies that call for compulsory licensing.[156]

Professors Richard Gilbert and Carl Shapiro, commenting on *Magill*, explained the reasons why they would not support necessarily compulsory licensing of property even when "such property is necessary for the production and marketing of a new product for which there is potential consumer demand".[157]

This skepticism remains even after taking into account the possibility of fine tuning the obligation to deal by allowing positive, reasonable and non-discriminatory royalty rates. No doubt, the welfare consequences of a compulsory licensing obligation depend, among other things, on the form of the licensing arrangement (e.g., fixed licensing fees v. two part tariffs) and the level of the royalty rates, if any. A zero royalty rate will promote

154. Note that conditions (c) and (d) may hold even when (a) and (b) do not, since the requested IP may be indispensable to develop the new product or service but not to remain active in the market.

155. In fact, IP holders may have an incentive to license their IP even if this leads to the emergence of (perfect) substitutes. It is basically a function of setting the licensee fee at the appropriate level.

156. Gilbert & Shapiro, *supra* note 151, at 12754.

157. *See id.*

the entry of inefficient competitors and have a major negative effect on investment. If the royalty rate is high, however, the compulsory license may not provide meaningful access.[158]

Before moving to consider the optimal legal standard for IP refusals, note that none of the arguments raised in this Section, and in particular Propositions 1 and 2, is specific to IP. They all apply *mutatis mutandis,* to refusals to grant access to any form of tangible or intangible property which is the result of previous investment or risk taking. What matters is the impact of forcing access on the incentives to innovate, and not the nature of the property rights at stake. So, the optimal legal standard characterized in the next Section should be taken as applying to the assessment of unilateral refusals to grant access to any form of property.

V. *APPLYING THE RULEMAKING FRAMEWORK*

This Section is structured in four parts. First, we consider the costs and likelihood of legal error in refusal to deal cases. That is, the cost of mandating access when compulsory licensing should not be ordered (i.e., when the refusal to license was legitimate) and vice versa. Second, we characterize the optimal legal standard for the assessment of unilateral refusals to license. Third, we consider the extent to which the ECJ's "exceptional circumstances test"[159] and the Commission's *Microsoft* test implement that optimal standard.[160] Finally, we focus on the narrower question of how to make the new product condition in *Magill* and *IMS Health* operational in practice.

A. *Type I and Type II Errors*

In the context of antitrust laws, a legal standard determines the conditions under which a unilateral business practice is found to be anti-competitive. However, whatever the standard for the competitive assessment of a business practice — such as a refusal to license IP — there will be mistakes.[161] In some cases,

158. *See id.* at 12573.

159. *See Magill,* Joined Cases C-241/91 P & C-242/91 P, [1995] E.C.R. I-743.

160. *Microsoft Decision, supra* note 5, Commission Decision No. COMP/C-3/ 37.792/EEC.

161. *See* Evans & Padilla, *supra* note 7, at 16-17 (discussing briefly the causes of those mistakes).

the refusal to license will be considered abusive when it is not (causing what in the jargon of Bayesian decision theory are known as type I errors), while in others the refusal to license will be regarded as legitimate when it should have been considered abusive (type II errors).[162] The expected costs of those two kinds of errors are a function of their welfare implications and their likelihood of occurring. The latter depends, in turn, on a number of factors, most importantly, the legal standard itself. A weaker standard makes it easier to establish that a practice is anti-competitive and, therefore, reduces the likelihood of type II errors (or false acquittals) while increasing the likelihood of type I errors (or false convictions).

In a refusal to license IP case, the cost of a type I error is mainly given by a reduction in the incentives to invest and innovate for firms. Evidence of false convictions is bound to reduce the incentives to invest by reducing the expected rate of return on successful innovations. In welfare terms, therefore, the cost of a type I error is equal to the loss in welfare resulting from the lack of introduction of valuable goods and services for which there is potential demand. That is given by area CS + π in Figure 2.

The cost of a type II error in this type of cases is equal to the sum of: (1) the loss of consumer welfare that results from supra-competitive prices; and (2) the potential reduction in consumer welfare resulting from the fact that some new products and services may not see the light in the absence a license. The first term, in turn, is given by two effects: (a) some consumers pay more than in an otherwise competitive market to obtain the good or service they wish (area π in Figure 2 above); and (b) other consumers see themselves excluded from consumption despite their relatively high valuations (area L in Figure 2.)

From this analysis, it should be clear that in the assessment of refusals to license IP both types of errors are likely and costly. However, from Proposition 1, we get a third proposition:

PROPOSITION 3. *In general, unless the refusal to license prevents the emergence of new products with high probability, the cost of a type I error is greater that the cost of a type II error in refusal to license IP cases.*

162. *See generally* PROBABILITY AND INFERENCE IN THE LAW OF EVIDENCE: THE USES AND LIMITS OF BAYESIANISM (Peter Tillers & Eric D. Green eds., 1988).

B. *The Choice of Legal Standard*

Consider the following set of legal standards for the assessment of unilateral refusals to license: *per se* legality, *per se* illegality, rule of reason, and modified *per se* legality and illegality. Each of these standards or rules will give rise to different error costs. The social objective is to find the rule that minimizes the expected cost of these errors.

Under a *per se* illegality (legality) standard, there would be type I errors (type II errors), but no type II errors (type I errors), since a refusal to license IP would always (never) be considered abusive.[163] A rule of reason standard would cause both type I and type II errors in proportions that are difficult to predict accurately; distinguishing between pro-competitive and anti-competitive refusals to deal is a daunting task. Finally, a modified *per se* legality (illegality) standard would cause type II errors (type I errors) but no type I errors (type II errors), but it will be less likely to do so than a pure *per se* legality (illegality) rule.

From an error cost perspective, a modified *per se* rule is superior to a *per se* rule for the assessment of refusals to license IP. This is because the modified *per se* rule reduces the likelihood of error when error is clearly possible. A modified *per se* legality rule is also preferable to a *per se* legality rule, because it can be tailored to mandate access when the refusal prevents the emergence of new products with high probability — a crucial caveat in Proposition 3.

From Proposition 3, it is also immediate that for this type of cases a modified *per se* legality rule is preferable to a modified *per se* illegality one, as the former minimizes the incidence of the type of error that is most costly. A similar line of argument applies to the comparison between a modified *per se* legality rule and the rule of reason. A modified *per se* legality rule would result in more false acquittals (or type II errors), but would cause fewer false convictions (or type I errors) which, according to Proposition 3, are in general more harmful. Another important reason in favor of a modified *per se* legality rule is that is easier and cheaper to administer and enforce than a rule of reason standard.[164]

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163. Assuming that there are no errors at the assessment of dominance.

164. *See* KEITH N. HYLTON, ANTITRUST LAW: ECONOMIC THEORY AND COMMON LAW

Hence, the optimal standard takes the form of a modified *per se* legality rule. That implies that a refusal to license will be considered legal *except* in "exceptional circumstances." Only when those exceptional circumstances are met is it desirable to compel a dominant firm to license its IP to competitors.

To summarize,

PROPOSITION 4. *The optimal legal standard for the antitrust assessment of refusals to license IP by dominant companies takes the form of a modified per se legality rule, where compulsory licensing is required only in exceptional circumstances.*

In Part II.F we posed the question: is it desirable to have a rule that specifies the set of necessary and sufficient conditions under which a refusal to license IP should be regarded as abusive? Proposition 4 answers affirmatively: compulsory licensing should be mandated only in exceptional circumstances.

But what should those circumstances be? A reasonable answer is to restrict intervention to those circumstances where compulsory licensing is most likely to result in a long-run welfare increase—i.e., conditions (a) to (d) in Proposition 2 above. An "exceptional circumstances test" based on conditions (a) to (d) may be both over-inclusive and under-inclusive. As we explain in Part IV.C, compulsory licensing may be welfare reducing even when (a) and (d) are satisfied and, conversely, it may be welfare reducing even when (a) and (b) fail to hold provided that (c) and (d) are satisfied.

There is no clear alternative, however. Dropping conditions (a) and (b) would solve the problem of under-inclusiveness, but would make it even more likely that licensing is mandated when it should not. Most importantly, there is no practical way—at least none apparent to us—to restrict compulsory licensing to those situations in which it would necessarily improve consumer welfare in the long run. That would require the courts to identify the set of circumstances where the negative impact on the *ex ante* incentives to innovate is less important than the positive impact on the incentives and ability of third parties to innovate *ex post.* That is, to the best of our knowledge, an extremely complex task to which many economists have recently devoted time

EVOLUTION 80 & n.27 (2003). Hylton also discusses the rule of reason and the *per se* illegality rule in chapters five and six. *See id.* at 90-131.

and effort, and for which no clear answer has yet emerged.[165]

C. *The Exceptional Circumstances Test and the* Microsoft *Test*

From Proposition 4, it follows immediately that the ECJ's narrow construction of the obligation to license IP under Article 82 of the EC Treaty in *Magill* and *IMS Health* is based on sound economics and constitutes appropriate public policy. The set of "exceptional circumstances" in *Magill* and *IMS Health* mirrors conditions (a) to (d) in Proposition 2 and, for the reasons discussed above, constitutes a reasonable implementation of the optimal legal standard for the assessment of refusals to licence IP: modified *per se* legality.

It is also immediate from Proposition 4 that the Commission's "balancing," or "rule of reason," test in *Microsoft* fails to do so. The Commission's *Microsoft* test seeks to "balance" the possible negative impact of an order to supply on the dominant firm's incentives to innovate with its positive impact on the level of innovation of the whole industry.[166] We know that such a balancing exercise is complex and is likely to produce too many and too costly false convictions. Also, the conditions laid down by the Commission in its *Microsoft* decision (see Part II.F above) are less stringent than those in Proposition Two and, hence, are likely to lead to finding a refusal to license abusive when it should not.[167] Mandating access under the conditions specified in *Microsoft* is bound to cause a fall in consumer welfare as well as in overall social welfare.

For example, the complete foreclosure requirement (condition (b)) in Proposition 2 is replaced with the vague requirement that "there is a risk of elimination of competition" in the secondary market.[168] Likewise, the new product criterion (condition (c)) in Proposition 2 is also replaced with a weaker condition — one that requires that the refusal to supply, "has the consequence of stifling innovation in the impacted market."[169] This condition does not clarify the nature of that innovation under

165. *See* SUZANNE SCOTCHMER, INNOVATION AND INCENTIVES (2004), especially chapters five (on sequential innovation) and six (on licensing and competition).

166. *See Microsoft, supra* note 5, ¶ 783, Commission Decision No. COMP/C-3/37.792/EEC.

167. *See id.*

168. *Id.* ¶ 781.

169. *Id.* ¶ 782.

threat. Should it lead to the development of products not yet offered by the IP holder and for which there is potential demand? Will the Commission consider the cloning of the products of the IP right holder an innovation when applying this test? Is there a need to show under the Commission test that the innovation that is allegedly discouraged will appeal to consumers?

The Commission includes in its *Microsoft* test a condition that is not part of the four conditions in Proposition Two, or their equivalents in the *Magill-IMS Health* test, namely that the refusal to deal represents a disruption of previous levels of supply.[170] But this condition does not make economic sense. It would imply that an IP holder would be able to exploit his IP exclusively only if he retains it solely for himself (i.e., if he operates in a vertically integrated fashion) at all times. If at any time in the past he was found entering into a licensing agreement with an independent licensor efficient, however, he could be compelled to continue with that licensing agreement for as long the licensor wishes to do so.[171]

D. *Economic Framework for Determining Whether a Product Is New*

The ECJ did not specify precisely what is to be understood by a "new product" in *IMS Health.* One possible interpretation would be that the Court requires the new product to be non-substitutable for existing products, i.e., introducing the new product would give rise to a separate product market.[172] From the Court's judgment, however, it appears clear that the "new" product — albeit presenting novel features — can be a substitute for the existing products and, therefore, belongs to the same relevant product market. Indeed, the Court emphasizes that the new product(s) are to be offered on the same (secon-

170. *See id.* ¶ 780 (stating that "Microsoft has diminished the level of disclosures that it makes concerning information necessary to achieve such interoperability . . . [and] Microsoft has turned down a formal request by Sun concerning such interoperability information").

171. We wish to thank Professor Jean Tirole from the Institut de Economie Industrielle ("IDEI") for raising this point to us.

172. *See* Geradin, *supra* note 8 (manuscript at 12); *see also* CLEARY GOTTLIEB STEEN & HAMILTON, LLP, EUROPEAN COURT OF JUSTICE ISSUES ITS JUDGMENT IN THE IMS HEALTH COMPULSORY LICENSING PROCEEDING 4 (June 3, 2004), *at* http://www.clearygottlieb.com/files/tbl_s5096AlertMemoranda/FileUpload5741/178/44-2004.pdf (last visited Apr. 22, 2005).

dary) market where the IP owner is active.[173]

So if the new product does not give rise to a separate product market, how can one identify a new product in practice so that the Court's new product test represents a meaningful limiting principle? In this section we provide a definition that is consistent with the Court's rulings, yields consistent and unambiguous predictions, and is also consistent with the logic of the error-cost framework employed to show the economic soundness of the ECJ's "exceptional circumstances test."

We will say that a *new product* for the purposes of the implementation of this test is one that satisfies potential demand by meeting the needs of consumers in ways that existing products do not. That is, a new product *expands* the market by bringing in at current prices consumers who were not satisfied before. It is in this sense that the new product creates a new option, not just variations of the same product as supplied by the IP holder. It is what Dr. John Temple Lang has called a "new kind of product."[174] For example, suppose there is a market in which products *A, B, C, D* and *E* are sold. Product *F* is a "new product" if it expands the market, so that the demand for *A-F* exceeds the demand for *A-E*. Product *F* is not a new product if it does not expand the market, so that the total demand for *A-F* is the same as the demand for *A-E*.

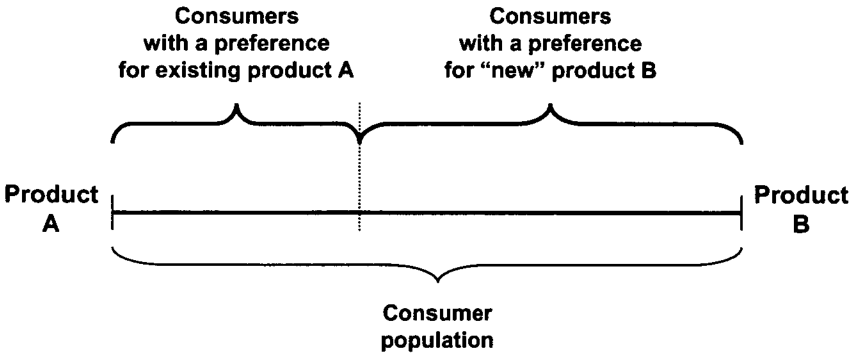
We can apply this definition to the facts in *Magill*. A guide that combines all television listings together may expand demand significantly. That is because a guide that combines all television listings provides convenience to consumers and, hence, attracts new consumers into the market. A guide that is merely a variant of an existing guide is unlikely to expand demand significantly; more likely, it shifts demand from an existing guide (we present no opinion here on whether this test was in fact met in Magill.)

173. *See* IMS Health GmbH & Co. OHG v. NDC Health GmbH & Co. KG, Case C-418/01, [2004] E.C.R. __, ¶ 52 (ECJ Apr. 29, 2004) (2004 ECJ CELEX LEXIS 192) (stating that one of three conditions needed for a finding of abuse of dominant position within the meaning of Article 82 EC is that, "the undertaking which requested the license intends to offer, on the market for the supply of the data in question, new products or services not offered by the copyright owner and for which there is a potential consumer demand").

174. *See* John Temple Lang, *supra* note 64, at 3 n.7 (stating that the *Magill* judgment should be understood as requiring a new kind of product).

As a practical matter, one must also consider the degree of expansion. Whenever a firm introduces a product it expands the market a bit. A product is new if it expands the market by a "significant" amount. This statement can be illustrated with the help of the following diagram, which is based on what economists denote as Hotelling's linear city.[175]

FIGURE 3: THE ECJ'S "NEW PRODUCT CONDITION"



Consumers are located in the linear city. They have heterogeneous preferences with respect to products *A* and *B*. Consumers' preferences with respect to a product are more intense when they are located closer to that product. In the picture, products *A* and *B* compete in the same relevant product market. A price reduction in product *A* is likely to cause a reduction in the sales of product *B*. Yet, at current prices, the addition of product *B* to the market increases consumer welfare by adding an entire class of consumers whose preferences were such that they preferred not to buy anything rather than buy product *A*.

In Figure 3, the new product *B* expands the market by bringing in consumers that were not interested in product *A*. The new product condition is satisfied in this example, but it would not be so if products *A* and *B* were both located at the center of the linear city competing head-to-head for the same set of consumers.

A second practical question relates to the burden of estab-

175. *See* Harold Hotelling, *Stability in Competition*, 39 ECON. J. 41, 45-57 (1929) (explaining the illustration where, "buyers of a commodity will be uniformly distributed along a line of length *l* which may be Main Street in a town or a transcontinental railroad. At two ends are places of business").

lishing that the requested IP is indeed required to produce a "new product" for which there is "potential consumer demand." It can be argued that this was not an issue in *Magill*, because there was ostensibly clear-cut evidence of significant demand for the weekly TV guide commercialized by *Magill*, for which there were no ready substitutes in the market. But, in many cases, the party requesting a license may have to disclose its business plans — and in particular their prospective demand studies — to satisfy the new product requirement. It is hard to see how the burden of proof could be allocated to anyone other than the requesting party, given that it is that party who is in possession of the relevant information.[176]

VI. *COMPULSORY LICENSING IN THE UNITED STATES*

U.S. law has almost always decided in favor of strong IP rights and against compulsory licensing. Or, to put it another way, the U.S. courts have given preeminence to the protection of the *ex ante* incentives for innovation over the antitrust goal of *ex post* output expansion. For at least a century, the U.S. courts have started with the proposition that, "[I]t is the privilege of any owner of property to use it or not use it, without question of motive" and that "exclusion may be said to have been of the very essence of [such a] right."[177] The courts have considered whether there are exceptions to this proposition. They have generally chosen between a "*per se* legality" approach and a "rebuttable presumption" or "modified *per se* legality" approach; the per se legality approach admits exceptions but it is more stringent than the rebuttable presumption approach. The differing approaches are evident from two cases involving similar facts: a group of Independent Service Organizations ("ISOs") found that access to the service market for a particular product was obstructed by the existence of patents, and claimed that the refusal to grant access was prohibited by antitrust laws.

In the *Independent Service Organizations Antitrust Litigation* ("*Xerox*"), the Federal Circuit[178] opted for the *per se* legality ap-

176. *See* CLEARY GOTTLIEB STEEN & HAMILTON, LLP, *supra* note 172, at 5.

177. Cont'l Paper Bag Co. v. E. Paper Bag Co., 210 U.S. 405, 429 (1908).

178. The Federal Circuit is a U.S. appeals court that was established in 1982 "with the combined jurisdiction of the U.S. Court of Customs and Patent Appeals and the U.S. Court of Claims as well as authorization to hear appeals from several federal administrative boards as well as patent cases from the U.S. district courts." *See* Federal

proach and ruled that a unilateral refusal to license could only be limited when a patent was obtained through fraud, an action to enforce a patent was a sham, or the patent holder used his right to refuse to sell patented parts to gain a monopoly in a market beyond the scope of the patent.[179] Contrast this judgment with that of the First Circuit in *Data General v. Grumman Systems Support*, which settled on a rebuttable presumption in favor of allowing right-holders (even those in a monopoly position) to refuse to license.[180] The First Circuit concluded that, in the case in question, there was insufficient evidence to rebut such a presumption: despite the change in Data General's policy to deal with ISOs, there was no material effect on the competitive process; Data General was both dominant before and after its change in policy.[181]

A. *Kodak*

To date, U.S. courts have held that a refusal to license breached antitrust law in only one case: *Image Technical Services v. Eastman Kodak* ("*Kodak*") which, like *Xerox*, involved a photocopying company and ISOs.[182] The ISOs claimed they were prevented from continuing to service Kodak photocopiers by Kodak's refusal to supply them, or their customers, with the appropriate parts.[183] The Ninth Circuit adopted the rebuttable presumption approach used in *Data General*.[184] It found that the presumption that Kodak was free to refuse to supply the parts had, indeed, been rebutted on the basis that only sixty-five of the thousands of parts at issue were in fact patented.[185] A second factor contributing to the rebuttal was that Kodak's IP justifications were raised at an extremely late stage in the proceedings.[186] The Court also seemed to have been concerned that Ko-

Judicial Center, Organization of the Federal Circuit, *at* http://air.fjc.gov/history/jc_frm.html (last visited Apr. 22, 2005).

179. *See* Indep. Serv. Orgs. Antitrust Litig., 203 F.3d 1322, 1328-29 (Fed. Cir. 2000).

180. Data Gen. Corp. v. Grumman Sys. Support Corp., 36 F.3d 1147, 1173-74 (1st Cir. 1994).

181. *See id.* at 1187-88.

182. Image Technical Servs., Inc. v. Eastman Kodak Co., 125 F.3d 1195, 1200 (9th Cir. 1997).

183. *See id.* at 1200-01.

184. *See id.* at 1218.

185. *See id.* at 1219-21.

186. *See id.*

dak was using its IP rights as justification for tying practices, even though the rules relating to tying were not specifically invoked at the later stages of the case.[187]

B. *Trinko*

Even if *Kodak* were to be viewed as opening the door to compulsory licensing, the Supreme Court's judgment in *Verizon Communications Inc. v. Law Offices of Curtis V. Trinko* ("*Trinko*") all but shuts the door firmly.[188] Verizon, an incumbent telecom operator, was obligated by the 1996 Telecommunications Act to provide access to its local exchange network, including some support systems that provided customer service.[189] AT&T and some other companies that wanted to offer competing local services complained that Verizon was not providing access to these support systems.[190] Federal and state regulators agreed and fined Verizon.[191] An antitrust class action seeking damages followed.[192] The lower court rejected the claim; however, the lower court's judgment was reversed on appeal.[193] The appellate court ruled that the allegations against Verizon were sufficient to claim monopolization under the Sherman Act on the basis of the doctrine of "essential facilities" (The court did not decide whether the "local loop" was indeed an essential facility, leaving this to be determined at first instance).[194] The case was then brought before the Supreme Court.[195]

The Supreme Court ruled in favor of Verizon.[196] Six justices signed a majority opinion that found that compelling firms — even monopolies — to share their property risked reducing innovation and economic growth.[197] The monopolist would have little incentive to invest if it had to share the results with its competitors, and the competitors would have little incentive if

187. *See id.* at 1212-14.
188. Verizon Communications Inc. v. Law Offices of Curtis V. Trinko, LLP, 540 U.S. 398 (2004).
189. *See id.* at 402.
190. *See id.* at 402-04.
191. *See id.*
192. *See id.* at 404-05.
193. *See id.*
194. *See id.* at 410.
195. *See id.* at 405.
196. *See id.* at 410.
197. *See id.* at 407-08.

they could piggyback on the monopolist.[198] The opinion noted that the Supreme Court had never previously recognized the doctrine of essential facilities, and saw no need either to recognize or to repudiate it in the context of the case at hand.[199] The justices also expressed doubt that courts could identify the exceptions when forced sharing might make sense.[200] They worried that courts would turn into "central planners" that would have to dictate price, quantity, and the other terms of deals between rivals.[201] Three other justices also agreed that Verizon should prevail but on standing grounds that did not necessitate, in their minds, addressing the merit issues examined by the majority.[202]

The Supreme Court in *Trinko* also distinguished its controversial decision in *Aspen Skiing Co. v. Aspen Highlands Skiing Corp.* in which it affirmed that a three-mountain ski resort had violated the antitrust laws by refusing to continue to make lift tickets available to a competing one-mountain resort.[203] It said that *Aspen Skiing* was "at or near the boundary" of when it would find an obligation to deal.[204] The linchpin of the violation there, the Court said, was that the dominant ski resort refused to sell its rivals tickets at retail prices — an action that could lead one to believe that it was foregoing current profits for the purpose of securing a monopoly and the ability to recoup its losses later through higher prices.[205] The Supreme Court also distinguished the famous *United States v. Terminal R.R. Ass'n of St. Louis*[206] case as well as *Associated Press v. United States*[207] on the grounds that those cases involved concerted action by several competitors to deny others access to an important facility.[208]

In summary, therefore, while the U.S. courts have recognized that a refusal to deal can in certain circumstances consti-

198. *See id.*

199. *See id.* at 411.

200. *See id.* at 407-08.

201. *See id.*

202. *See id.* at 416-18 (Stevens, J., concurring).

203. Aspen Skiing Co. v. Aspen Highlands Skiing Corp., 472 U.S. 585, 606-10 (1985).

204. *See Trinko*, 540 U.S. at 409.

205. *See id.*

206. 224 U.S. 383 (1912).

207. 326 U.S. 1 (1945).

208. *See Trinko*, 540 U.S. at 410 & n.3.

tute anticompetitive conduct, the approach of the Supreme Court has been "very cautious in recognizing such exceptions, because of the uncertain virtue of forced sharing and the difficulty of identifying and remedying anticompetitive conduct by a single firm."[209]

C. *Comparing the EU and U.S. Approaches*

Although the EU and U.S. both have high hurdles for finding an obligation to deal, they are different hurdles and come from somewhat different perspectives on the role of competition law. U.S. law does not consider a refusal to license IP an antitrust violation by itself.[210] It does not become a violation just because it prevents the emergence of a new product or otherwise satisfies the *Magill* and *IMS Health* conditions.[211] It must instead be implicated by other actions taken by the owner of the IP.[212] In *Kodak*, the Appeals Court found that the defendant was trying to monopolize the photocopying service market through a series of illegitimate actions and that Kodak's invocation of its IP rights was a pretext.[213] More generally, in *Trinko*, the Supreme Court noted that the refusal to deal in *Aspen Ski* was deemed an antitrust violation because it could only be explained as part of an anticompetitive strategy to drive a rival from business.[214] Instead, EC law is willing to entertain the possibility that a refusal to license IP is an antitrust violation by itself.[215]

That said, there are important parallels between the EC and U.S. law on refusal to license IP rights in practice. The courts in the EU and the U.S. have been highly reluctant to override an owner's IP rights.[216] Both have recognized that *ex ante* incentives for investment and innovation generally outweigh the *ex post*

209. *Id.* at 408.

210. *See id.* at 410.

211. *See id.*; *see contra* Magill, Joined Cases C-241/91 P & C-242/91 P, [1995] E.C.R. I-743; *see also* IMS Health GmbH & Co. OHG v. NDC Health GmbH & Co. KG, Case C-418/01, [2004] E.C.R. __, (ECJ Apr. 29, 2004) (2004 ECJ CELEX LEXIS 192).

212. *See, e.g.*, Image Technical Servs., Inc. v. Eastman Kodak Co., 125 F.3d 1195, 1219-21 (9th Cir. 1997).

213. *See id.*

214. *See Trinko*, 540 U.S. at 409.

215. *See Magill*, [1995] E.C.R. I-743; *see also IMS Health*, [2004] E.C.R. __, (ECJ Apr. 29, 2004) (2004 ECJ CELEX LEXIS 192).

216. *See, e.g.*, *Trinko*, 540 U.S. at 407-08; Oscar Bronner GmbH & Co. KG v. Mediaprint Zeitungs-und Zeitschriftenverlag GmbH & Co. KG, Case C-7/97, [1998] E.C.R. I-7791.

benefits of increased supply by additional competitors.[217] The EU and U.S. courts have imposed compulsory licensing as an antitrust remedy in two cases — *Magill* in the EU and *Kodak* in the U.S., both of which involved extreme and "exceptional circumstances."[218]

The parallel is less clear outside the realm of IP.[219] In fact *Trinko* concerned physical property — the local loop — and not IP, and yet, in its assessment, the Supreme Court took on board the same sort of *ex ante* incentive effects that characterize the judgments on refusal to license IP on both sides of the Atlantic.[220] This is not the case in Europe. The conditions for mandatory access in *Bronner* — the leading refusal to deal EC case involving physical property — do not include the new product condition in *Magill* and *IMS Health*.[221] And even though Advocate-General Jacobs considered at length the disincentive effects on investment in physical infrastructures of forced access in his much celebrated opinion, the Court has not yet endorsed those views in a case.[222]

VII. *CONCLUSION*

Most successful modern economies have adopted policies that recognize that strong IP rights are needed to provide *ex ante* incentives for innovation that will raise standards of living in the *long run*. Hundreds of books and economic studies affirm the soundness of these policies.[223] The economic literature also emphasizes the role of competition as an engine of growth.[224] Yet, some observers see conflict between the promotion of competition and the protection of IP, i.e., between the antitrust and IP

217. *See id.*

218. *See Magill*, [1995] E.C.R. I-743; *see also Kodak*, 125 F.3d at 1225-26.

219. "For the purpose of antitrust analysis, the [U.S. Department of Justice] regards intellectual property . . . as being essentially comparable to any other form of tangible or intangible property." U.S. DEP'T OF JUST., ANTITRUST ENFORCEMENT GUIDELINES FOR INTERNATIONAL OPERATIONS 17, at 64 (1995).

220. *See Trinko*, 540 U.S. at 407-08.

221. *See Bronner*, [1998] E.C.R. I-7791.

222. *See id.*

223. *See, e.g.*, WILLIAM J. BAUMOL, THE FREE MARKET INNOVATION MACHINE (2002); WILLIAM M. LANDES & RICHARD A. POSNER, THE ECONOMIC STRUCTURE OF INTELLECTUAL PROPERTY LAW (2003); and references therein.

224. *See, e.g.*, EUROPEAN COMMISSION, EUROPEAN COMPETITIVENESS REPORT 2004 (2004), and references therein.

laws.[225] The goal of IP laws is to promote innovation, and they do so by granting temporary monopoly power. The antitrust laws seek to promote competition and curb market power.

Generally, however, there is no tension. The antitrust laws do not condemn monopolies for the very same reason that the IP laws protect IP rights. European competition laws only prohibit monopolies from abusing their position in certain ways deemed harmful,[226] and the U.S. laws only prohibit obtaining or maintaining monopolies through means other than IP rights, scale economies, merit based competition reflecting superior skills, enhanced efficiency, and sheer luck.[227] There is a possible exception though. Courts on both sides of the Atlantic have found an antitrust violation when a firm refuses to license its IP rights.[228] This is deemed an abuse for which the remedy is compulsory licensing.[229] It is a controversial exception because it places the antitrust laws in the position of explicitly taking away something the IP laws have bestowed.[230] Thus far, the U.S. and European courts have found that a refusal to license an IP right is an antitrust violation only in "exceptional circumstances."[231]

In this Article we have shown that this analogous approach of high, albeit different, hurdles for compulsory licensing by American and European courts constitutes sound competition policy, as it implements the optimal legal standard for assessing refusals to license — one that maximizes long run consumer welfare by minimizing the expected cost of errors resulting from condemning welfare-increasing practices and from condoning welfare-reducing ones. The "balancing test" adopted by the

225. *See generally* James Rill et al., The Antitrust and IP Interface in the U.S. and EU, Competition Law 2003/04, Global Counsel Handbooks, *available at* http://www.howrey.com/docs/IPInterfaceUSEU.pdf (last visited Apr. 4, 2005) (discussing the relationships between IP and antitrust law in both the United States and the European Union).

226. *See* RICHARD WHISH, COMPETITION LAW (5th ed. 2003).

227. *See* United States v. Grinnell Corp., 384 U.S. 563, 570-71 (1966).

228. *See Magill*, Joined Cases C-241/91 P & C-242/91 P, [1995] E.C.R. I-743; *see also* Image Technical Servs., Inc. v. Eastman Kodak Co., 125 F.3d 1195, 1225-26 (9th Cir. 1997).

229. *See Magill*, [1995] E.C.R. I-743; *see also Kodak*, 125 F.3d at 1225-26.

230. "[U]nilateral refusal to license cases . . . cut to the heart of the intellectual property owner's right to exclude others from practicing the intellectual property." Herbert Hovenkamp et al., *Unilateral Refusals to License* (2004) (conference paper adapted from Herbert Hovenkamp et al., *IP and Antitrust* (2004)).

231. *See Magill*, [1995] E.C.R. I-743; *see also Kodak*, 125 F.3d at 1225-26.

Commission in *Microsoft*, therefore, represents a disconcerting new development, as it will lead to too many and too costly false convictions.

We have also argued that a similar approach should be applied to the assessment of unilateral refusals to provide access to physical infrastructure or to any other tangible or intangible property. And yet, while the EU approach to compulsory licensing is closely aligned with that followed by the U.S. courts, the Atlantic consensus on the treatment of refusals to deal appears to be weaker outside the realm of IP.

From a European perspective, this Article gives rise to two principal policy recommendations. First, it cautions against the adoption of an "entirety of the circumstances" approach to the assessment of refusals to license IP. A case-by-case test, like the Commission's test in *Microsoft*, constitutes, in the context of IP refusals, an invitation to error. Second, it suggests that extending the application of the "exceptional circumstances test" in *Magill* and *IMS Health*, including the new product screen, to refusal to deal cases involving physical property would likely constitute appropriate public policy.