

SONY BMG MUSIC ENTERTAINMENT, ET AL.,
V.
JOEL TENENBAUM

Expert Report of Stanley J. Liebowitz

I. Qualifications

1. I am the Ashbel Smith Professor of Managerial Economics in the School of Management at the University of Texas at Dallas. I am also the director of the Center for the Economic Analysis of Property Rights (CAPRI). During 2007-2008 I was the president of the Society for Economic Research in Copyright Issues and from 1996-1999 I was the Academic Associate Dean of the School of Management at UTD.
2. My research and teaching have largely focused on the impacts of new technology on markets with an emphasis on copying, network effects, and intellectual property. I have created courses titled “The Economics of Network Goods” and “The Business of Entertainment” and have taught these classes to masters and doctoral students.
3. I was one of the first economists to examine the impact of unauthorized copying when in the late 1970s the Canadian government asked me to examine the impact of photocopying on publishers. I am, to my knowledge, the first economist to suggest and explain the conditions under which unauthorized copying might benefit copyright owners. I have had a continued research focus on various forms of copying and since file-sharing became popular, having written nine peer reviewed papers and numerous articles on various aspects of file-sharing.
4. I have served on the advisory boards of numerous professional organizations associated with copyright and technology. The influence of my research led to my being chosen to give the keynote address at the inaugural meetings of the Society for Economic Research on Copyright Issues. I have testified on these topics before congressional committees and government agencies.
5. My book, *Rethinking the Network Economy*, which discussed the impact of the Internet on traditional business models, including the impact of file-sharing on the sound recording industry, was picked as one of the top 30 business books in 2003 by Soundview Executive Books. My book coauthored with Stephen Margolis, *Winners, Losers and Microsoft*, which discussed the impacts of

networks on economic markets, was favorably reviewed in leading publications such as the Wall Street Journal, The Economist, and Wired Magazine.

6. My Curriculum Vitae can be found in Appendix A.
7. I am nominally charging my typical consulting rate of \$500 hour but with a cap on total costs of \$4000 for this report and an additional \$2000 if I need to travel by air to testify or \$1000 for video testimony, plus expenses.

II. Assignment and Documents Used

8. I have been retained by the Plaintiffs to examine claims made by Defendant purporting first, that file-sharing does not harm the producers of sound recordings and second, that the current decline in the sound recording market is due mainly to the failure of sound recording companies to adopt superior business models.
9. To inform my analysis I have reviewed various documents in this case including: the declarations and reports of John Palfrey, and Dr. J. A. Pouwelse as well as the Complaint. A more complete list of the materials upon which I have relied is found in Appendix B.

III. Summary

10. I understand that Plaintiffs have alleged that the Defendant has engaged in unlawful downloading and uploading of copyright material and that Defendant's behavior has harmed the Plaintiffs. I also understand that the Defendant has rejected these allegations.
11. I have concluded that file-sharing, such as that alleged by Plaintiffs, has caused considerable harm to the market for sound recordings, whether in the form of CDs or in the form of digital downloads. File-sharing is the only explanation for the sound recording sales dive which:
 - a. Coincides with the timing of the decline in sound recording sales.
 - b. Is consistent with the sound recordings sales decline occurring in all major international markets.¹
 - c. Is consistent with the size of the decline in sound recording sales that has occurred.
 - d. Is supported by a great majority of economic studies examining this issue.

¹ Liebowitz (2007) discusses the declines in sound recording sales in leading international markets.

12. I have concluded that the decline in sound recording sales is not due to a failure of sound recording firms to adjust their business models to changes in Internet technology. The standard sound recording business model, to effectively work on the Internet, merely needed to adjust to a new form of selling on the Internet and the removal of middlemen distributors. Sites like iTunes do this very well. Instead, the decline in sound recording revenues is due to a weakening in the property rights on sound recordings which is brought about by file-sharing.

IV. File-sharing is economically harmful to the Sound Recording Owners

13. It has been suggested by Dr. Pouwelse and Defendant that file-sharing has a benign impact on sound recording sales.² Economic theory suggests that file-sharing might have several possible impacts on the sales of sound recordings.³ The most obvious impact is a substitution impact, meaning that individuals who have downloaded a particular song from a file-sharing system are likely to use that copy as a substitute for the purchase of that song on a CD or as a paid digital download. Since the pirated version is very often an almost perfect substitute for the purchased version, many users will keep the pirate version and not spend the money required for a purchase. It is almost unimaginable that there would not be a strong substitution effect, particularly if there are few legal or social penalties imposed on those using pirated versions.
14. Another possible impact of file sharing is ‘sampling’ or ‘exposure’ which implies that file-sharers learn about songs by downloading them on file-sharing networks but that they then turn around and purchase songs that they discover that they like. This of course assumes that they are motivated to purchase a legitimate version when they already have a perfectly functional copy. It also assumes that individuals find file-sharing systems more useful for checking out songs than is the case from listening to song previews on websites like iTunes or Amazon, or even older technologies like radio. If file-sharers do not purchase songs that they enjoy and to which they continue to listen then this would not be sampling.
15. A third possible impact is ‘network effect’ which is defined as a product becoming more profitable when more people use the product. It has been claimed that file-sharing might benefit sound recording sales because more individuals listen to music when it is freely available and this greater usage

² Lines 112-116 in his “Declaration and Expert Report”.

³ The various possible impacts of unauthorized copying were first laid out on page 11 and 12 in Liebowitz, Stan J. 1981. “The Impact of Reprography on the Copyright System.” Copyright Revision Series, Ottawa Canada, available at: <http://ssrn.com/abstract=250082> .

increases the value that consumers place on the sound recording.⁴ Although it is possible that a form of network effect exists in music, it is unlikely that the type of network effect that might increase overall music sales would exist.

16. A network effect for a particular song makes sense. When other people like a particular song that might increase a person's value for the same song. But this type of network effect works to increase the value of particular songs but also decrease the value of less popular songs. This type of network effect merely shifts listening from one song to another and the overall demand for songs is not likely to change much in any particular way.
17. Only if there were network effects for sound recordings in general could we believe that the demand for sound recordings overall would rise. But that would mean that people would get additional value from sound recordings whenever the total usage of sound recordings increased. This seems most improbable since people generally do not know the extent to which other people listen to sound recordings and thus cannot react to changes in the consumption of sound recording listening. Thus a network effect that would increase the overall value of sound recordings is extremely unlikely.
18. Further, even if an overall network effect existed, it would only increase sound recording sales if the beneficiaries of the network effect purchased sound recordings instead of downloading them from file-sharing services. Given the chain of unlikely events needed for network effects to enhance the market for sound recordings I conclude that network effects can be dismissed as a serious benefit to sound recording sales.
19. That leaves sampling and substitution. Even if sampling were an important factor for many file-sharers, it is not likely to counterbalance the substitution effect. Sampling implies nothing more than trying out the music before buying. People may do a better job of matching the music they buy to their tastes, but that does not mean that they buy more music. Therefore, whether sampling is occurring or not, it is impossible to say that sampling will increase sales or counter the negative impact on sales brought about by substitution.
20. There is every reason to expect, theoretically, that the substitution effect, which always harms sales, will overpower the sampling effect even if the sampling effect were positive, which it might not be. File-sharing, therefore, is likely to have a negative impact on record sales, in theory.⁵ Theory, however, should always be backed up by empirical work, and the empirical evidence also strongly supports the thesis that file-sharing is harmful to sound recording sales.

⁴ This point is made in greater detail in Liebowitz (2005)

⁵ This point was made in Liebowitz (2002).

21. The clearest and probably the most compelling evidence for file-sharing's impact on sound recording sales is the timing of the rise of file-sharing with the decline in sound recording sales. There is an almost perfect juxtaposition of the two very powerful events (record sales peaked in 1999 just as Napster was being born).⁶ This timing does not prove that file-sharing was responsible for the decline in sound recording sales, but such close timing makes the likelihood that file-sharing caused the decline quite high.
22. Given the very large decline in record sales that has continued almost unabated since file-sharing became an important phenomenon, there must be some powerful force at work (or the confluence of several strong forces) to have caused such a decline. File-sharing fits that description very well since the number of Americans who engage in file-sharing is estimated to be very large (in the tens of millions) and the number of songs thought to be exchanged over file-sharing systems has been thought to be larger than the number of songs sold in the legitimate market.⁷
23. There are no other good candidate hypotheses that might explain this decline in sound recording sales although numerous possibilities have been suggested. For example, it has been claimed that individuals, just prior to CD sales decline, had been purchasing an unusually large quantity of CDs because they were converting their old music libraries from cassettes and vinyl. This argument continues that this librarying motive started to decline coincidentally at the same time that file-sharing began and that the decline in librarying has continued unabated since then.⁸ There are numerous reasons why this is not a reasonable explanation. First, the switchover to CDs had been going on since the early 1980s and is likely to have peaked well before 1999 when album sales peaked. Second, there is direct evidence contradicting this hypothesis based upon examining catalog and deep catalog sales, defined as albums older than 18 and 36 month respectively. In order for librarying to explain the continuous decline in sound recording sales after 1999, those albums purchased when tape or vinyl was the dominant format, would have needed to shrink year after year. Yet measurements of catalog and deep catalog sales show the opposite result: the share of catalog and deep catalog albums *increased* after 1999, contrary to the hypothesis.⁹

⁶ Napster began in 1999 but did not generate large numbers of users until 2000. See http://findarticles.com/p/articles/mi_m0EIN/is_2000_Oct_5/ai_65750111/ for numbers on Napster's initial growth.

⁷ See Liebowitz (2006) which reports on various estimates of the quantity of downloaded files as well as estimates on the number of downloaders.

⁸ This claim is made in Oberholzer-Gee and Strumpf (2007).

⁹ This result, as well as the alternative hypotheses discussed in paragraph 24, is discussed in Liebowitz (2007).

24. Other possible explanations for the decline in sound recording sales fail in a similar manner as discussed at length in several of my papers.¹⁰ Inventory changes due to the rise of big box retailers did not explain the decline in sales. Changes in GDP did not explain the decline in sales. Changes in the price of sound recordings did not explain the decline. Changes in videogame and prerecorded movie sales did not explain the decline. There are no explanations that have been put forward, other than file-sharing that can successfully explain the decline in sound recording sales.
25. Further, this decline in sales has occurred in all major industrialized sound recording markets, regardless of the language spoken or musical tastes. One factor that all these countries have in common is that their citizens have used the Internet and file-sharing programs to an increasing extent after 1999.
26. Finally, economists have examined whether or not file-sharing has led to a decline in sound recording sales. The great majority of studies have concluded that file-sharing harms record sales. These studies include Blackburn, Hong, Michel, Peitz and Waelbroek, Rob and Waldfogel, Zentner (twice) and two of mine. A study by Oberholzer-Gee and Strumpf claims virtually no impact of file-sharing on sound recording sales, but that study is unreliable, making numerous factual and conceptual misstatements to the point where author bias would seem a possibility.¹¹ Further, Oberholzer-Gee and Strumpf have refused to make their data available to other researchers and have provided contradictory explanations for their refusal to do so.¹²
27. Although digital downloads have been generating a larger share of the sound recording market these digital downloads are endangered by file-sharing to at least the same extent as CDs because file-shared downloads are even closer substitutes for digital downloads than for CDs. It is my opinion that the sale of digital downloads would be considerably higher than they currently are except for file-sharing.
28. This finding of a decline in the sound recording market holds not just for CDs and digital downloads. It also has implications for other forms of revenue generation such as subscription based services (e.g., the new Napster) or even potential advertising based platforms (e.g., SpiralFrog). Any market where consumers are asked to pay money for their usage of music suffers from a potential substitution effect and is likely to be hindered or eliminated by file-sharing.

¹⁰ See my 2004, 2007 and 2008b papers listed in Appendix B.

¹¹ In particular see my 2007 and 2008b papers.

¹² See the David Glenn story in the Chronicle of Higher Education and the Norbert Haring stories in Handelsblatt.

V. Decline in Sales is not due to the ‘wrong business model’

29. It has been suggested by some proponents of file-sharing (including Dr. Pouwelse) that the decline in sound recording sales was due to the inability of record companies to seize the initiative when file-sharing first became popular.¹³ Under this scenario the record companies are corporate dinosaurs unable to navigate the changing circumstances brought about by technological advances. Critics suggest: ‘If only they had developed business models that embraced the Internet, they would have done fine.’ Such a claim, however, is a grave distortion of the events that have occurred since the 1999 birth of Napster.
30. The Internet is a wonderful technology that does provide many advantages for both consumers and producers. Particularly for digital products, such as songs, the Internet makes it possible to provide consumers with a faster delivery mechanism (virtually instantaneous), at lower cost (no retail shelves, no trucks to move the CDs) and with a much larger selection of songs (with no physical storage costs, Internet stores can ‘stock’ a much larger inventory than would be found in even the largest brick and mortar retailer).¹⁴
31. These cost savings, along with the better ability to meet esoteric consumer tastes, should have provided gains to both consumers and producers. There is no guarantee that the same firms would have continued to be industry leaders, but whichever producers and retailers of sound recordings had succeeded, we would have expected the gains to have been split between consumers and producers. Certainly, sound recording firms, as a group, should not have been harmed by the Internet.
32. Nor does the business model for producing music need to have changed in a drastic way due to the Internet. The major advance brought about by the Internet is the ability to deliver the product to the consumer without a physical distribution system. This ‘middleman’ function, the distribution system, would be expected to largely disappear for digital goods such as songs. But the market would still need someone to discover and produce the music and someone to sell and promote the final product to consumers
33. The reason that the sound recording industry is in such dire straits is that the property rights over the product that they sell has been diluted or eliminated due to new technologies which rely on the Internet, i.e., file-sharing. File-sharing of copyrighted works, which is what I will mean when I talk about file-sharing, is an outgrowth of the Internet’s impinging on the ability to enforce

¹³ See page 2 of “Supplement to Expert Reports of Dr. J. A. Pouwelse.

¹⁴ The material in this and the next few paragraphs is discussed in more detail in my 2002 book *Re-thinking the Network Economy*.

legal protection of property rights for digital products. Because many users of file-sharing systems can enjoy sound recordings without the need to purchase them, sales of sound recordings have fallen.

34. Any industry will flounder or disappear when the property rights over its products weaken sufficiently. This is independent of the business model being used. The incentives to invest and produce are reduced or eliminated when the fruits of one's labors are expropriated by others, whether the expropriation is by governments or individual wrongdoers. For example, foreign companies are generally unwilling to conduct business in a country which expropriates products, factories, or profits on the whim of a dictator.
35. Critics of the sound recording industry suggest that it should change business models and stop trying to sell sound recordings. Instead, these critics suggest, the sound recording industry should try to generate revenues from giving away music and focusing on revenues with more secure property rights: selling advertising, selling merchandise such as t-shirts, or switching to live concerts as a form of revenue generation.
36. It is always possible to change one's line of business, but when someone is forced to do so because property rights in their product are deteriorating, the forced change in business models indicates that the entity changing models has been harmed.
37. For example, if vandals kept breaking into a local jewelry store, the owner might decide that it was profitable to give up and might switch to being a salesman in someone else's store. But this change is not an improvement for the former jewel entrepreneur since it was forced on him by weak enforcement of his property rights.
38. Of course, concerts and memorabilia have always been a form of revenue generation that has been used along with sales of sound recordings. The industry would have been expected to evolve in a way where each of these revenue mechanisms was used in ways that were most efficient and profitable.¹⁵ That is because only the fittest business models are expected to thrive in competitive markets.
39. Even if the growth of the Internet provided new opportunities for sound recording firms, the failure to take advantage of these opportunities would not, by itself, harm profits. The failure to take advantage of a new opportunity only means that profits will not rise as much as they might have, not that profits will fall. But current sound recording industry profits have fallen and the

¹⁵ I discussed revenues from concerts vis-à-vis sound recording sales in an Internet Evolution blog post: http://www.internetevolution.com/author.asp?section_id=568&doc_id=146002.

entire industry is in decline which must be due to some factor other than a failure to take advantage of a new opportunity.

40. Further, it is not the improved technology of the Internet that is associated with the decline in the fortunes of the sound recording firms. The Internet began in the mid 1990s. It was not until 2000, when Napster became popular, that the fortunes of the sound recording industry began to falter.
41. The file-sharing systems, beginning with Napster and moving on to Kazaa and BitTorrent, do not produce their own competing music using business models that are outperforming the industry's models. Indeed, the songs and albums that are at the top of the CD and iTunes charts are generally the same songs and albums that are at the top of file-sharing charts.
42. The problem for the sound recording industry is that file-sharing alternatives merely leech off the efforts of others who actually create the music to which the public wishes to listen. It is not a failure to adopt a better business model.
43. The true social harm caused by file-sharing is in the reduced production of professional quality music. When, because of file-sharing, firms engaged in creating music suffer in the market, basic economics predicts that the production of music will decline. This is just a normal assumption made for all market. Automobiles, cameras, apartments and any other product you care to name will be built only when consumers are willing to pay for them.
44. The same assumption holds for creators of copyrighted works: if you want authors to write, musicians to perform, and actors to act, you need to pay them to do so. As reasonable as this assumption might seem, it has sometimes been questioned in the case of artists and their creations. It is sometimes pointed out that there are lots of people who would like to be rock stars or movie stars. Of course, being a rock star or movie star would probably lose much of its appeal if there were no mansions or limousines both of which require that the stars get paid.
45. A simple example can help. Many people would love the idea of being a member of the Boston Red Sox. Many people would pay to be able to sit in the dugout with the team. Many college and high school players play for nothing, perhaps in the hopes of someday becoming a major leaguer. Does this mean that baseball players do not have to be paid, that they would all be happy to play for nothing?
46. The answer is obviously "no". Even if someone wanted to play so badly that money didn't matter, practicality would intrude. A professional level baseball player needs to devote full time to the job. But if baseball didn't pay, the players would need to get other jobs, unless they were independently wealthy.

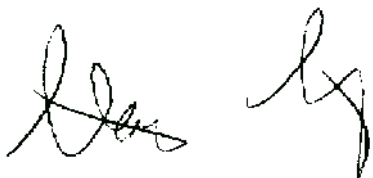
And someone with a full time job, particularly if they have a family, will be unable to devote sufficient time to the sport to be at the same level as someone else with the same talent who does not have to work.

47. The same holds true for recording artists. There are many amateurs who would like to be stars. Professional sound recordings require producers, studios, and often the accompaniment of professional studio musicians or even an orchestra (and orchestrator). And the public needs to be alerted to the existence of the sound recordings. All of this takes money.
48. The Internet has allowed hopeful amateurs (some of whom will make it as professionals) to self publish on the web. But many of these recordings are no different than the 'demo tapes' that hopefuls made prior to the Internet. Demo tapes are very different from CDs produced by record companies, just as your local high school baseball team is different from the Red Sox, even if a player or two might someday make it to the majors.
49. If payments to sound recording companies decrease, basic economics says that society will lose because there will be fewer professional quality sound recordings produced. It is important, if we wanted to check this claim, that we make sure to compare apples to apples. In other words, to compare only professional level recordings over time (because it is almost entirely professional recordings that consumers listen to).
50. This report represents my current opinions. I reserve the right to supplement or revise these opinions if and when new information becomes available.

VI. Recent Testimony

51. I have not provided courtroom testimony or depositions in the last four years.

I declare under penalty of perjury and the laws of the United States of America that the foregoing is true and correct. Executed this 10th day of July 2009.

A handwritten signature in black ink, appearing to read 'Stanley J. Liebowitz', written over a horizontal line.

Dr. Stanley J. Liebowitz

Appendix A

CURRICULUM VITAE

Stanley J. Liebowitz

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Education

Ph.D., Economics, UCLA
B. A., Johns Hopkins University

Employment Summary

2006-present	Ashbel Smith Professor of Managerial Economics, UTD
2004-present	Director, Center for the Economic Analysis of Property Rights and Innovation
1996-1999	Academic Associate Dean, School of Management, University Of Texas at Dallas.
1991-2006	Professor of Managerial Economics, School Of Management, University Of Texas at Dallas.
1986-91	Associate Professor of Economics, North Carolina State University
1985-86	John Olin Faculty Fellow in Law And Economics, University of Chicago
1982-86	Assistant Professor of Economics, Graduate School of Management, University of Rochester.
1977-82	Assistant Professor of Economics, University of Western Ontario.

Professional Affiliations

President, Society for Research on Copyright Issues, 2006-2008
Editorial Board, Journal of Media Economics 2008-
Editorial Board, Review of Economic Research on Copyright Issues 2003-
Editorial Board, Copyright 2005-2006
Editorial Board, Journal of Network Industries 1999-2003
Editorial Board for Special Issue of MIS Quarterly on Standardization 2005.
Advisory Board for the Free State Foundation, 2008-
Academic Advisory Committee, Copyright Alliance, 2007-
Advisory Board for Heartland Institute's Digital Economic Center 1999-present
Advisory Board for the Center for the Study of Digital Property, 2005-
Advisory Board for the Center on Entrepreneurial Innovation 2005-
Advisory Board of the Intellectual Property Institute, University of Richmond Law School 2005-
Advisory Board of the Media Institute 2007-
Adjunct Scholar, Competitive Enterprise Institute, 2003-
Adjunct Scholar, Cato Institute, 2003-
Fellow, Independent Institute, 1998-

Publications: Academic Articles (bold indicates relevant articles)

1. "Bundles of Joy: The Ubiquity and Efficiency of Bundles in New Technology Markets" (with Stephen Margolis) *Journal of Competition Law & Economics*, 1 Vol. 5, March 2009, pp. 1-48. Lead Article.
2. "Anatomy of a Train Wreck: Causes of the Mortgage Meltdown" Chapter in *Housing America: Building Out of a Crisis* edited by Benjamin Powell and Randall Holcomb, Transaction Publishers, 2009.
3. **"Testing File-Sharing's Impact on Music Album Sales in Cities" *Management Science*, (4) Vol. 54 April 2008, pp. 852-859.**
4. **"How to Best Ensure Remuneration for Creators in the Market for Music? Copyright and its Alternatives" (with Richard Watt), *Journal of Economic Surveys*, 4 Vol. 20, September 2006, pp. 513-545.**
5. **"File-Sharing: Creative Destruction or just Plain Destruction?" *Journal of Law and Economics* 49 April, 2006, p1-28. Lead Article.**
6. **"Economists Examine File-Sharing and Music Sales" in *Industrial Organization and the Digital Economy* G. Illing and M. Peitz (eds.), pp. 145-174, MIT press, 2006.**
7. "Seventeen Famous Economists Weigh in on Copyright: The Role of Theory, Empirics, and Network Effects." (with Steve Margolis) *Harvard Journal of Law and Technology* 2 Vol. 18, (Spring 2005) pp. 435-457. Reprinted in *Recent Trends in the Economics of Copyright*, edited by Richard Watt and Ruth Towse, Edward Elgar 2008, part of the International Library of Critical Writings in Economics.
8. **"Economists' Topsy-Turvy View of Piracy" *The Review of Economic Research on Copyright Issues* 2(1) 2005 pp. 5-17.**
9. **"Pitfalls in Measuring the Impact of File-sharing on the Sound Recording Market." *CESifo Economic Studies* Vol. 51, 2-3/2005, pp. 435-473.**
10. "MP3s and copyright collectives: a cure worse than the disease?" *Developments in the Economics of Copyright: Research and Analysis*, edited by Wendy Gordon, Lisa Takeyama and Ruth Towse, Edward Elgar, 2005. Reprinted in "Copyright Issues in Higher Education: A Legal Compendium." Edited by Georgia K. Harper, National Association of College and University Attorneys, 2006.
11. "Network Meltdown: A Legacy of Bad Economics" in *How New is the New Economy*, edited by E Jansen, Edward Elgar, 2005.
12. "The Elusive Symbiosis: The Impact of Radio on the Record Industry" *The Review of Economic Research on Copyright Issues* Vol. 1, pp.93-118 2004.
13. "Lessons from the Internet Bubble" (translated to Japanese) *Hitotsubashi Business Review* 52 (1), June 2004.
14. **"Will MP3 downloads Annihilate the Record Industry? The Evidence so Far" *Advances in the Study of Entrepreneurship, Innovation, and Economic Growth*, V. 15, 2004, pp. 229-260. Reprinted in *Recent Developments in Cultural Economics*, edited by Ruth Towse, Edward Elgar 2007, part of the International Library of Critical Writings in Economics.**

15. **“Back to the Future: Can Copyright Owners Appropriate Revenues in the Face of New Copying Technologies?”** lead article in **The Economics of Copyright: Recent Developments and Analysis**, edited by Wendy Gordon and Richard Watt, Edward Elgar Publishing, 2003. Reprinted in Internal Revenue Service Business Valuation Library.
16. **Re-thinking the Network Economy: The Real Forces that Drive the Digital Marketplace**, Amacom, New York NY, 2002. Favorably reviewed in The Economist, UPI, YaleGlobal Now, Online Magazine. Chapters 2 and 3 serialized in Spring 2003 issue of Milken Review. Picked as one of the top 30 business books in 2003 by Soundview Executive book summaries.
17. The Economics of Qwerty: Papers by Stan Liebowitz and Stephen Margolis, edited by Peter Lewin, Palgrave/NYU Press, 2002.
18. “Network Effects” entry in the Handbook of Telecommunications Economics, edited by M. Caves, S. Majumdar, and I. Vogelsang, pp. 76-94, Elsevier, 2002. (With Margolis)
19. “An Expensive Pig in a Poke: Estimating the Costs of the District Court’s Proposed Breakup of Microsoft,” George Mason Law Review, 3 Volume 9, Spring 2001, pp. 727-760.
20. “Network Effects and the Microsoft Case” in Dynamic Competition and Public Policy: Technology, Innovation, and Antitrust Issues, Edited by Jerry Ellig, Cambridge University Press, 2001. (With Margolis)
21. Winners, Losers, and Microsoft: Competition and Antitrust in High Technology, (with Steve Margolis) Independent Institute, 1999, 288 pages. Favorably reviewed in The Economist, Wall Street Journal, Wired Magazine. Excerpted in Upside Magazine (December 1999). Chapter 6 reprinted in Famous Fables of Economics, edited by Dan Spulber, Blackwell Publishers, 2001 and Market Failure or Success: The New Debate, edited by Tyler Cowan and Eric Crampton, Edward Elgar, 2003.
22. “Path Dependence” entry in the Encyclopedia of Law and Economics, Edward Elgar, 2000, 981-999, (with Steve Margolis).
23. “Mortgage Discrimination in Boston: Where’s the Bias?” (with Ted Day), Economic Inquiry, January 1998, 36-1 Pp.1-27. Lead article.
24. "Do We Get Stuck With Inferior Technologies?" in Soziale Schliesung im Prozes der Technologieentwicklung, edited by Josef Esser, Gerd Fleischmann and Thomas Heimer, Campus Verlag, 1998, pp. 119-147.
25. “Path Dependence” entry in The New Palgraves Dictionary of Economics and the Law, MacMillan, 1998, Vol. 3, 17-22, (with Steve Margolis).
26. “Network Effects and Externalities” entry in The New Palgraves Dictionary of Economics and the Law, MacMillan, 1998, Vol. 2, 671-675, (with Steve Margolis).
27. "Should Technology Choice be a Concern for Antitrust?" (with Steve Margolis), Harvard Journal of Law and Technology, Summer 1996, Pp. 283-318.
28. “Path Dependence, Lock-in and History” (with Steve Margolis), Journal of Law, Economics and Organization, April 1995 11-1, pp 205-226. Reprinted in: Market Process Theories, edited by Peter Boettke and David Prychitko, Edward Elgar, 1998. Market failure or Success, Tyler Cowan and Eric Crampton, Edward Elgin 2002.

29. "Are Network Externalities a New Source of Market Failure?" (with Stephen E. Margolis), *Research in Law and Economics*, Vol 17 1995, Pp. 1-22. Lead article.
30. "Reply to Invited Comments by Regibeau And Gandal" (with Stephen E. Margolis), *Research In Law And Economics*, 1995, Pp. 41-46.
31. "Network Externality: An Uncommon Tragedy" (with Stephen E. Margolis) *The Journal Of Economic Perspectives*, Spring 1994, 8-2 Pp. 133-150.
32. "The Fable of the Keys" (with Stephen E. Margolis) *Journal of Law and Economics*, April 1990, 33-1 Pp. 1-26. Lead article. Reprinted in: *Famous Fables of Economics*, edited by Dan Spulber, Blackwell Publishers, 2002. *Foundations of Regulatory Economics*, edited by Robert Ekelund, Edward Elgar, 1998. *Antitrust and Competition Policy 2005* edited by Andrew Kleit, Edward Elgar. Translated to Russian in: *The Sources: History of Economic Thought* edited by A. Kouzminov, State University - Higher School of Economics Publishing House, Moscow 2007.
33. "Price Differentials and Price Discrimination", *Economic Inquiry*, October 1988, 26-4 Pp. 779-83.
34. "Assessing Assessments of the Quality of Economics Departments," (with John Palmer), *Quarterly Review of Economics And Business*, Summer 1988, 28-2 Pp. 88-113.
35. "Some Puzzling Behavior by the Owners of Intellectual Products," *Contemporary Policy Issues*, July 1987, 5-3 Pp. 44-53.
36. "On The Measurement and Mismeasurement of Monopoly Power," *International Review of Law and Economics*, 3-2, June 1987, Pp. 89-99.
- 37. "Copyright Law, Photocopying and Price Discrimination," *Research in Law and Economics*, 1986, Pp. 181-200.**
38. *The Relative Efficiency Of Private And Public Broadcasting In Canada*, The Fraser Institute, Vancouver, 1985, 72 Pages [partially Reprinted In *Canadian Broadcasting: The Challenge Of Change*, Edited By Colin Hoskins And Stuart Mcfadyen, University Of Alberta Press, 1986].
- 39. "Copying and Indirect Appropriability: Photocopying of Journals," *Journal of Political Economy*, 93-5 October 1985, Pp. 945-957. Reprinted in *The Economics of Intellectual Property*, edited by Ruth Towse and Rudi Holzhauer, Edward Elgar, 2001.**
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55. "Mission Impossible: Determining the Value of Copyright" in Copyright: Administrative Institutions in Ysolde Gendreau (ed.) Copyright Administrative Institutions: Conference Organized by the Centre de recherche en droit public (CRDP) of the Faculty of Law of the Universite de Montreal, 11 & 12 October 2001, (Cowansville, PQ: Les Editions Yvon Blais Inc.) 2002, pp. 77-100.
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57. "Slim Pickings in Cyberspace" CIO Magazine, pp. 60-62, October 15, 2000.
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60. "Path Dependence and Economic Evolution" in Jobs and Capital, Winter 1998 Milken Institute for Job and Capital Formation, Pp. 36-41, (with Steve Margolis).
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62. "Typing Errors," Reason Magazine, June 1996, Pages 29-35 (with Steve Margolis).

63. "Path Dependence: From Qwerty To Windows," Regulation Magazine, Fall, 1995, Pages 35-42, (with Steve Margolis). Plus reply to letter by Paul Krugman in the Spring 96 issue.
64. "Don't Handcuff Technology" Upside Magazine, September 1995, Pages 64-73, (with Steve Margolis)

Policy Reports

65. "What are the Consequences of the European Union Extending Copyright Length for Sound Recordings?" Report written for the IFPI, February 2006.
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67. "Swiss Cheese Windows: Estimating Some Costs of the Nine State Remedy," Policy Report for the Association for Competitive Technology, February 21, 2002, 29 pages.
68. "An Expensive Pig in a Poke: Estimating the Costs of the District Court's Proposed Breakup of Microsoft," Policy Report for the Association for Competitive Technology, September 21, 2000, 36 pages.
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70. "Product Quality and the Economic Performance of Firms," McKinsey and Company, October 15, 1999, 88 pages.
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72. "Dismal Science Fictions: Network Effects, Microsoft, and Antitrust Speculation" a Cato Policy Analysis, October 27 1998, (with Steve Margolis), 37 pages.
73. Why Health Care Costs Too Much, Policy Analysis, June 23, 1994, 27 Pages, The Cato Institute

Work in Progress

- "Clash of the Titans: The Internet as a competitor to Television" with Alejandro Zentner, 2009
- "Is the Copyright Monopoly a Best-Selling Fiction?" September 2008.
- "Sequel to Liebowitz's Comment on the Oberholzer-Gee and Strumpf Paper on File-sharing (July 5, 2008).**
- "A Comment on the Oberholzer-Gee and Strumpf Paper on File-Sharing", September 2007.**
- "Don't Play it Again Sam: Measuring the Impact of Radio Play on Record Sales" 2007.
- "Micropayments and DRM for Intellectual Properties: Price Discrimination, Unbundling, Both, or Neither?"

Honors & Awards

- Who's Who in America 2009
- Erskine Visiting Fellow at the University of Canterbury, 2008 (declined)
- Asked to write blog/column for Internet Evolution, 2008
- Ashbel Smith Chair at the University of Texas at Dallas 2006-
- President, Society for Economic Research on Copyright Issues, 2007-2008.
- Keynote speaker at Business Software Alliance Regional Meeting in Kuala Lumpur, November 2005.

US Supreme Court MGM v. Grokster concurring opinion authored by Justice Breyer cited my paper on file-sharing.

Symposium on the 20th anniversary of my concept of indirect appropriability. The Review of Economic Research on Copyright Issues 2005.

Included in Who's Who in Economics – based on receiving citations from academic articles. Mark Blaug and Howard Vane (eds), Fourth Edition, Edward Elgar Publishing 2003.

Rethinking the Network Economy picked as one of the top 30 business books in 2003 by Soundview Executive Books.

Asked to write column for CIO Magazine, 2000

Article with Steve Margolis in Reason Magazine (1996) selected to be in Reason's anthology of Best Articles of the Decade (1990s), 2002.

Keynote address at the Inaugural Conference of the Society for Economic Research on Copyright Issues. Madrid Spain, June, 2002.

Keynote address at conference on Competition, Monopoly, and Regulation in the Information Age in Frankfurt, Germany, May 25, 2000.

"Distinguished Research Award" North Carolina State U, 1990

1990 Bradley Fellowship to Attend Mt. Pelerin Society Meetings in Munich Germany

1985-86 John Olin Faculty Fellow at the University of Chicago Law School

1975-76 Smith Richardson Fellowship, UCLA

Research Contracts

1999 McKinsey and Company, To Investigate the Impact of Product Quality on Firm Performance.

1988 US Congress, Office of Technology Assessment, To Review Work By William Johnson On The Impact Of Copying On Copyright.

1983 US. Congress, Office of Technology Assessment, the Impact Of Intellectual Property Laws On The Research And Development of Computer Technologies.

1982 Centre For The Economic Analysis Of Property Rights, University of Western Ontario - To Examine Interactions Of Complementary Products When One Is A Copyrighted Material.

1981 Department Of Communications - To Investigate the Efficiency of The Canadian Broadcasting Corporation.

1979 Bureau of Intellectual Property, Consumer and Corporate Affairs - To Investigate the Impact of Reprography on The Copyright System.

1978 Bureau of Intellectual Property, Consumer and Corporate Affairs - To Investigate Impact of Cable Television on Copyright, 1978-1979.

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Liebowitz, Stan J (2005). "Pitfalls in Measuring the Impact of File-sharing on the Sound Recording Market." CESifo Economic Studies Vol. 51, 2-3, pp. 435-473.

Liebowitz, Stan J. 2006 "File-Sharing: Creative Destruction or just Plain Destruction?" Journal of Law and Economics 49 April, 2006, p1-28.

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Second Amended Exhibit A

Second Amended Schedule 1