

Intellectual Property: Do We Need It?

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Michele Boldrin and David K. Levine



Why do we like property?

- My “farm” is my property
- I invest in it, I improve it, I maintain it
- If the “government” or anyone else can take it without my permission
- Why would I bother?



Property and Competition

- If my property is stolen I don't have it any more
- Suppose that instead of stealing my farm
- My rival sets up a farm next door
- My rival farms harder and invests more
- The price of food is driven down
- I lose my comfortable business, my customers are “stolen”
- This is not theft
- This is competition



Theft and Competition

- Competition is good, theft is bad
- Competition makes us better off, we work harder and invest more
- Theft makes us worse off, we work less hard and invest less
- Property is ambiguous
- The government can grant me “exclusive farming rights”
- This is property, I can license my rival to allow him to farm
- I can sell my “farming rights”
- But this is bad – it prevents competition
- The key problem: downstream restrictions on the use of property



Intellectual Property

Government IP

- patents
 - copyrights
- (not trademarks)

Private Contractual IP

- non-disclosure agreements
 - shrink-wrap agreements
-
- These are “property” only in the bad sense
 - They are a government grant of exclusive right or monopoly



Intellectual Monopoly

- The absence of IP does not mean the absence of property in ideas
- Copies of ideas are property, and would be even without IP
- IP is monopoly
- Why do economists who love competition and hate monopoly argue in favor of IP?
- Even without IP you earn something – lead time, complimentary sales
- On the other hand – fixed cost, spillover externality, so...
- Competition may not lead to sufficient incentive to innovate/create
- On the gripping hand – IP raises costs of innovation as well increasing reward

The Conventional Wisdom Among Economists

the economics literature in general acknowledges that intellectual property leads to undesirable legal “intellectual monopoly” but generally argues that this might be a good thing

Gene Grossman and Elhanan Helpman (1994)

Firms must be able to sell their products at prices in excess of unit production costs if they are to recover their up-front outlays on research and development. In other words, some imperfect competition is necessary to support private investments in new technologies.

- Widely believed
- Wrong as a matter of theory
- Wrong as a matter of fact

What is Wrong with This Story?

- ◆ Build a shoe-factory, face constant mc of using it: same story; why is this not an issue?
- ◆ Shoe factories have a capacity constraint – leads to a positive return
- ◆ transmission of ideas is similarly limited by scarcity of current set of people and/or products embodying the idea
- ◆ In the shoe factory case, capacity is chosen small enough that the competitive rent covers the cost of building the factory



Competitive Rents

- Usable copies of ideas are in short supply
- To earn a competitive rent you must own something in scarce supply
- What is it?
- It could be copies; it could be something that is a complement of copies



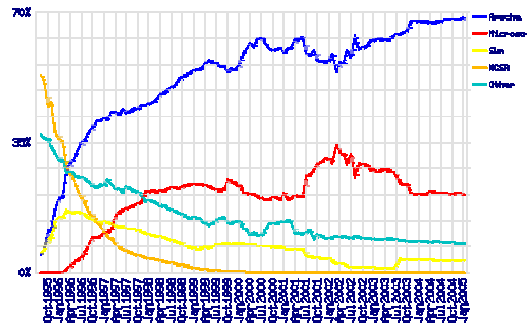
Free Software: Complementary Sales

- What is free software
- Why is the market for free software competitive?
- Examples: GNU/Linux, Openoffice, Apache, Bittorrent



The Question and the Answer

- Is it commercially important and does anyone make money?
- USA today 9/26/2005: “BitTorrent gets \$8.75M from venture-capital firm”
- Did Al Gore invent the internet? No free software did
- google



Software Patents

- Classical case where patents work poorly
- Ideas are mostly obvious
- Each piece of software incorporates many different ideas
- Imagine if every word in the English language was patented
- Fortunately software patents are largely ignored in practice
- In Canada it appears that the Patent Office introduced software patents on its own
- In the late 19th century the chemical industry survived the heavy hand of English/French style patents by fleeing to Switzerland and Germany
- As the U.S. becomes more restrictive it is important to the world at large (and very profitable to individual countries in particular) that some countries remain less restrictive

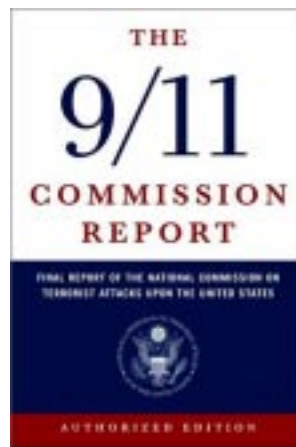
Copyright

"During the nineteenth century anyone was free in the United States to reprint a foreign publication, and yet American publishers found it profitable to make arrangements with English authors. Evidence before the 1876-8 Commission shows that English authors sometimes received more from the sale of their books by American publishers, where they had no copyright, than from their royalties in [England]" where they did have copyright.

Arnold Plant [1934] "The Economic Aspects of Copyright in Books," *Economica*, 167-195

9/11 Commission Report: Lead Time

- government document, not covered by copyright
- released to the public at noon on Thursday July 22, 2004
- freely available for downloading from a government website
- printed version published by W.W. Norton simultaneously
- Norton sold about 1.1 million copies (Potter = 8 mil)
- Norton earned at least \$600,000 despite competition from St. Martin's



The Tail Wags the Dog

- 1998 music industry: 13.72 billion US\$
- movie industry about 3 times as large, so “copyright industry” about \$50 billion US\$
- 1998 computer hardware/software industry: 560.27 billion US\$
- radio spectrum: worth roughly ten times as much for cell phone as for over the air television
- people spend a lot more entertaining each other than buying commercial entertainment
- copyright has had a substantially negative effect on innovation in the computer industry (replay TV)
- youtube and facebook

Blockbuster Ideas

ideas of great social value will be produced under competition

- great blockbuster novels
- life-saving drugs

generate such great surplus relative to the cost of creation that relatively little of that surplus need be captured by the innovator to make it worth her while

great works of Shakespeare and Mozart were created under conditions of perfect competition.



Marginal Ideas

Marginal ideas face less competition

- *Harry Potter and the Half Blood Prince* scanned and illegally released onto the Internet within hours of appearing in print
- No trace of pirate versions of Sara Rath's opus *Star Lake Saloon and Housekeeping Cottages: A Novel* published six days earlier

Marginal ideas don't face much competition and aren't going to get much protection from the law

Impact of the Internet: Comic strips and t-shirts

Rosenberg raves that he has been able to make five times as much off his merchandising as off his subscriptions and that advertising doesn't come close to generating the revenue he gets off t-shirts, noting a profit margin of up to 50%, which would be as much as \$9 per item in some cases. Stevens quotes \$4-\$5 as his margin. Rosenberg further claims to have tripled his 2003 income by switching to t-shirt sales in the last three months of 2003. Todd Allen [2005]



Intellectual Property and the Scale of the Market

- ◆ growth reduces need for intellectual monopoly as there are more sales to pay for the fixed cost
- ◆ expanding the scale of the market increases the incentive to innovate – the optimal policy is to reduce protection as the scale of the market expands
- ◆ world GDP has grown by a factor of nearly 100 since 1900
- ◆ WTO expands the market by nearly 50%



Does Intellectual Monopoly Lead to More Innovation?

- Innovations generally build on existing goods, that is on earlier innovations – it is generally recognized that intellectual property protection has an undesirable effect on future innovation – Scotchmer (1991) for example
- Holdup problem
- Intellectual monopoly increases the rewards to innovation – but also the costs
- Intellectual monopoly may reduce innovation
- James Watt refused for the 31 years of his monopoly to allow innovation in the steam engine
- the Wright brothers less successfully tried to do the same with the airplane

Pharmaceuticals

- Looks at data from Indian generic manufacturers
- takes about 5 years for a new drug to enter the Indian market as a generic following its introduction elsewhere
- effective patent protection is only about 10 years
- appears without patent that the innovator of a new product would enjoy a 5 year rather than 10 year monopoly
- when generics enter price of the original does not change much, and the original retains about 50% market share
- so 50% profit loss during the last five years is lost revenue do to not having patents

about 20% loss of present value