

Law and Economics
Session 14
Property Law 2

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- Intellectual Property
 - Patents
 - Copyright
 - Trademark
- Adverse Possession
- Eminent Domain

- In this section we discuss property rights in information:
 - Patents: inventions
 - Copyright: artworks
 - Trademarks: commercial brands

Nonrivalry of Information Goods

- Information goods have a public good feature:
 - They are nonrivalrous: zero marginal cost
 - Excludable: It is costly, but not impossible, to exclude users.
- Free rider effect:
 - Without property rights protections, consumers will pirate these goods.
 - So without protections or subsidies, we would have under-supply of information goods.

- Awarding the exclusive property rights to those who create new information or new ideas.
 - \Rightarrow Enables the inventor to charge full value to users and resellers.
 - \Rightarrow Thus encourages innovation.
 - \Rightarrow The right-holder may directly commercialize the protected information, or license somebody else to develop it for a fee.

The conflicting goals of intellectual property

- Giving a monopoly to the inventor creates incentives for the creation of these goods
- But limiting the supply of a nonrivalrous good is inefficient.
 - We can improve welfare at zero cost by lifting restrictions on consumption.
- Moreover, stronger intellectual property can retard subsequent innovation.

How to balance these goals

- Duration:
 - Patents (20 years)
 - Copyright (life + 70 years)
 - Trademark (forever)
- Breadth:
 - How different does another idea/invention have to be to avoid an infringement suit?

- Patent law establishes ownership rights to inventions, processes, and other technical improvements.
 - Inventions deemed “non-obvious, of practical utility and with no prior commercialization”
- A patent gives a 20-year monopoly over the idea.
- During the patent, using the idea requires a license.

- The caselaw on how different an invention has to be from existing patents is vague and unpredictable.
- With high bargaining costs:
 - Broad protection expedites early innovations but slows down subsequent improvements
 - Narrow protection discourages early innovations but expedites subsequent innovations.

- An initial innovation (basic research) has the stand-alone value of \$1 million but costs \$2 million. A subsequent improvement has commercial value of \$3 million but costs \$1 million.
 - Is the initial innovation socially valuable?
 - Yes
 - Will it occur with narrow patent law?
 - No (people will steal the idea for the improvement, so initial invention won't happen)

Advantages of patent system

- Encourages innovation:
 - Primary problem patent system solves – the appropriability problem
 - If a firm cannot recover costs of invention because resulting information is freely available, then we could expect a lower level of innovation.
 - Without patents, the invented idea (i.e., a better design of water pump, a new formula for a drug, etc.) may be stolen by another party (i.e., utilized without internalizing the costs)
- Other advantages:
 - Immediate dissemination of invented technology
 - Innovators receive rewards commensurate with the value of innovation

Problems with the patent system

- Monopoly distortion: Too little quantity.
- Duplication costs arise, as too many parties searching for one chest of lost treasure
- Inhibit further innovation:
 - Strong protection for earlier research discourages future research.
- Create income inequality:
 - Would Bill Gates have \$78.9 billion without strict enforcement of Microsoft patents?

- Although patents are currently limited to 20 years, the effective duration of patent protection is usually longer because of clever strategies on the part of drug companies.
- Some strategies drug companies use include:
 - Adding something to a drug to make it new and improved, just as a patent is about to expire
 - Finding loopholes in the patent law, such as patenting another feature of the drug
- E.g.: When Prozac's patent was nearly expired, they released a new version that you only take once a week.

Delaying Generic Drugs

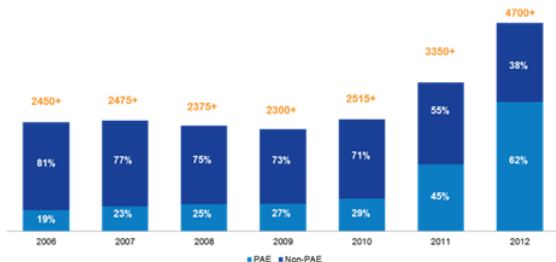
- These tactics keep cheaper generic drugs off the market and cost consumers hundreds of millions of dollars every year.
- Moreover, they reduce incentives to research and develop new drugs:
 - If I'm a manufacturer, and I can change one molecule and get another 20 years of patent life, then why would I spend money researching new drugs, which has a much less certain payoff?

Pharmaceuticals in developing countries

- Pharmaceutical patents keep urgently needed drugs, such as AIDS treatments, out of the hands of developing countries that need them.
- The price of manufacturing the drugs is miniscule but the countries want to maintain their monopolies in high-income countries.

Patent Trolls

- Patent trolls, or “non-performing entities,” are organizations that don’t invent anything; they just buy up patents and sue people for infringement.
- Responsible for 62% of USA patent litigation in 2012:



- For example: “Innovatio IP Ventures LLC” (a patent troll company) has sued a bunch of hotels and cafes (such as Starbucks) for patent infringement – for providing wi-fi internet.

- Open source software is better than proprietary software.
 - E.g., Mozilla Firefox works much better than Microsoft Internet Explorer.
 - It is also free.
 - And nobody at Mozilla is every going to get anywhere near \$78.9 billion – the benefits of the software are distributed across all its users rather than being internalized as profits by the software company.
- The superiority of open source software is puzzling from the point of view of standard economic models:
 - It works because programmers build their human capital on open source projects.

Alternatives to the patent system

- Contests and prizes (e.g. 1829 steam engine contest)
 - More generally, separate the incentives for invention and restrictions on dissemination
 - But difficult to set the prize amount
- Public subsidies of research and development:
 - Universities and NIH are already involved in most pharma patents
 - But universities are also heavily involved in the patent game

- Annual patent renewal
 - Companies have to pay increasingly large sums to maintain patent, so most patents will enter public domain quickly
- Compulsory licensing
 - Especially for life-saving medicines
 - Allow countries to make generics while giving a “reasonable” return to the patent-holder.

- Copyright law grants ownership rights to authors, artists, and composers to their works.
- No registration required.
- Again, copyright is supposed to sustain incentives for creativity, but there's no good empirical evidence one way or the other whether it accomplishes this.
- What kind of copying should allowed?
 - Pro: Allowing copying increases the consumption value of the copyrighted material, which might increase demand.
 - Con: Allowing copying (for distribution) could make people substitute to the copy, reducing demand.

- A limited right of replication and distribution:
 - For example, quoting a novelist in a review of the book
 - Quoting a news report in a political blog
 - Making copies of one's own CD's
- Besides increasing the consumption value of works, this is important for constitutional reasons:
 - What if newspaper columnists could be sued for quoting Barack Obama's autobiography?

- In 1998 Congress extended copyright duration from life + 50 years to life + 70 years.
 - They named the law after Sonny Bono from Sonny and Cher, who had just died in a skiing accident.
 - But the real force behind the extension was the Walt Disney Corporation – the copyrights on Mickey Mouse and some of the other early Disney properties from the 1920s were about to expire.
- Effectively granted an additional 20 years on the monopoly.
- How does this affect incentives for creativity?

Copyright Duration 2

- Remember how patent law increases income inequality? The same is true for copyright:
 - The Disney family fortune is still growing thanks to the copyright extension
- Other problems:
 - We can't reuse or reshape the copyrighted ideas
 - Content companies have weakened incentives to create new ideas if they can continue to profit off old ones.
- Perhaps worst of all:
 - A huge majority of copyrighted works from a hundred years ago are not making any money, and the authors living or dead don't care about maintaining the copyright
 - But the default rule is in favor of the copyright without explicit author permission, and transaction costs are too high to obtain that permission for all these works.

- Scientific discoveries are public domain, but the articles publishing those discoveries are copyrighted.
- If you didn't have Columbia access, you might have to pay \$30 or more for an article you may or may not even need to cite.
- The profit from copyright is supposed to pay for the journal's expenses
 - But editors are generally academics working for free
 - Referees too
- For-profit publishers have been buying up journals and jacking up the prices charged to university libraries.

Table 1: **Prices and Citations—Nonprofit Journals**

Journal Title	Price to Libs	Price Per Page	Price Per Cite	Price Per Recent Cite	Citation Rank
AEA Journals*	\$140	\$0.03	\$0.01	\$0.12	1
Econometrica	\$214	\$0.14	\$0.03	\$0.93	2
J Political Ec	\$175	\$0.10	\$0.03	\$0.69	3
Quarterly J Ec	\$198	\$0.13	\$0.05	\$0.70	4
J Finance	\$207	\$0.07	\$0.05	\$0.63	5
J Consumer Res	\$99	\$0.23	\$0.04	\$0.90	6
Ec Journal	\$321	\$0.16	\$0.13	\$1.29	8
Rev Ec Studies	\$180	\$0.22	\$0.08	\$2.34	11
Rev Ec Statistics	\$200	\$0.29	\$0.09	\$1.15	12
Amer J Ag Ec	\$134	\$0.11	\$0.07	\$1.01	14

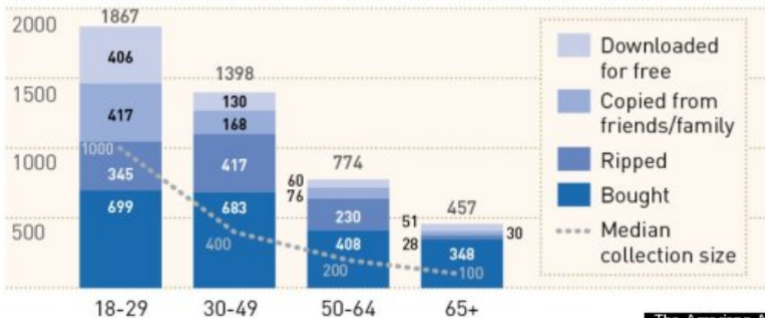
Table 2: Prices and Citations—Commercial Publishers

Journal Title	Price to Libs	Price Per Page	Price Per Cite	Price Per Recent Cite	Citation Rank
J Financial Ec	\$1429	\$0.73	\$0.53	\$7.85	7
J Ec Theory	\$1800	\$0.90	\$0.72	\$10.40	9
J Econometrics	\$2020	\$0.87	\$0.81	\$8.74	10
J Monetary Econ	\$1078	\$0.80	\$0.58	\$9.71	13
J Public Ec	\$1546	\$0.72	\$1.08	\$10.66	19
World Development	\$1548	\$1.35	\$1.10	\$7.04	20
European Ec Rev	\$1189	\$0.65	\$0.96	\$6.83	21
J Env Ec & Mgmt	\$650	\$1.02	\$0.56	\$3.90	22
J Health Ec	\$865	\$0.98	\$0.90	\$5.41	28
Ec Letters	\$1592	\$1.04	\$1.03	\$17.12	29

Digital piracy

- Unlike analog media, digital media does not suffer degradation of quality in copy generation.
- Digital piracy might reduce media profits.
- Panic of the recording industries seems unwarranted:

Music File Collections (US) [AMONG THE 50% WHO OWN MUSIC FILES]



The American Assembly

- Trademark law grants ownership for distinctive commercial marks and symbols that uniquely identify an individual or organization's products.
- Why protect trademarks?
 - Enables firms to build reputation around their brand images embodied by trademarks, thus signaling their qualities.
 - Encourages quality competition.

- Unclaimed property:
 - Wild animals
 - Natural resources
 - Land
 - Radio spectra
- How to assign property rights?

- First Possession: Ownership determined by first claimant.
- Pierson v. Post (Wild Animals):
 - Pierson had been chasing after a fox for hours, Post shot the fox at the last second
 - Giving the fox to Post incentivizes free riders (this is what the court did actually)
- Also: Buried treasure, land rush, gold rush, inventions, natural gas
- Advantages:
 - Administrative ease
 - Allocative efficiency (more qualified tends to have stronger desire to possess)
- Disadvantages:
 - Too much effort in search activities.
 - Tragedy of the commons (open fisheries)

Oklahoma Land Lottery

- In 1901, the state of Oklahoma distributed a lot of land by lottery.
 - Many of the people who won the lottery were land speculators and immediately resold for a big profit.
- These transactions were costly and didn't create value.
 - In 1906, switched to auctions.

- Early on, gave the spectrum away to organizations who made the best case
 - A huge giveaway to the companies that later became our beloved media conglomerates
- In the 1980s, they tried a lottery
 - Mostly speculators (400,000 applicants) with costly resale processes (same as Oklahoma Land Lottery)
- The 1994 auctions were a big success.

- Initial assignment matters:
 - Resale is time consuming and costly, so better to get it to the highest-value use immediately.
- Auctions are efficient:
 - What better way to prove value of ownership than by willingness to pay?
 - In particular, second-price auctions make honest bidding a dominant strategy.
 - Avoids costly possession/search.
 - Easy to administer

Non-market allocation methods

- Sometimes the government chooses who gets things.
- Difficult to justify, but prevalent.
 - Low-income housing
 - Health care
 - Human organs
 - School Choice
 - Immigration Visas

- “Adverse possession” is the “squatter’s rights” rule:
 - If you find unused land and live on it for ten years without being expelled, the land is yours.
- Obviously this doesn’t happen very much any more, but it encourages efficient land use.

- “Eminent domain” is the right of the government to take away private land for public use, in exchange for fair compensation.
- A controversial constitutional issue because oftentimes the market value for land is less than the value the current owners ascribe to it
 - Figuring out that private valuation is difficult and self-reporting wouldn't work.
- There is also the risk of land being taken and transferred to groups with political influence, e.g. real estate developers.
- Why don't we use eminent domain to purchase drug patents?

- Good empirical work on property is scarce. Some cross-sectional studies have shown:
 - Property rights regimes vary significantly across primitive societies, and seem to depend on the value of resources and the costs of establishing and enforcing rights
 - Some evidence that privatization helps – for example, in overfishing
 - Cross-country studies find that developing countries do better if they have stronger private property rights protections.