Conference on Law & Economics of Copyright Users' Rights

Economic Research Design

Sept 26 - 28, 2013

Topics

- Research Questions (Hypotheses)
- Framework (Model)
- Measurement (Copyright Policies, Laws, and Regulations)
- Datasets (Analyses/Inferences)

I. Research Questions

- Impact of Copyright Flexibility/User's Rights on Creativity, Diffusion, and Access
  - Does it enhance … or harm?
- Differential Impacts by Sector, Type of Work, and Country Region/Level of Development
  - Effects on consumers and producers, including producer-users, user-innovators, non-profits

II. Framework

- Canonical Model

$$Y_{int} = \alpha_i + \alpha_n + \alpha_t + \beta X_{nt} + \gamma Z_{int} + \varepsilon_{int}$$

(need: sources of variation, control factors)

- Alternative

$$Y_{int} = \alpha_i + \alpha_n + \alpha_t + \beta X_{nt} + \delta\left(X_{nt} * R_{int}\right) + \gamma Z_{int} + \varepsilon_{int}$$

III. Measurement of 'Regime'

- Information on copyright policy or reforms(regarding owner's rights, user's rights)
- Indicator Variable Approach (for Event study, natural experiments, or difference-in-differences analysis):

  X_{nt} = 1 if reform occurred, zero otherwise

- IP Watch List (of countries)
  - USTR Section 301: Weak copyright enforcements
  - Consumers International: Copyright provisions that are *harmful* to consumers (2009 – 2012)

III. Measurement of 'Regime'

- 'Counting' Approach
  - *Baker & Cunningham (2006)*

$x_t^{Broaden}$ = number of judicial decisions & legal acts which broaden copyrights

x_t^{Narrow} = number of judicial decisions & legal acts which narrow copyrights

- Independent Variables of Interest:

$$\Delta x_t^{Broaden}, \Delta x_t^{Narrow}$$

III. Measurement of 'Regime'

- 'Index' Approach
  - Based on statutes, case laws, regulations, enforcement-related aspects, norms, ...
- Method
  I. Select Categories (1, 2, ..., N)
  II. Each category has M (or so) features
  III. Weighted or un-weighted average of categories, each of which has a score
- Construct
  - One for **Creator** (owner) rights
  - Another for **User** rights
  - Or combine, or take difference

IV. Datasets

- Statistical Databases
- Firm-level: Thomson Datastream, Compustat, BEA micro data on Multinationals
- Examples of Data Available:
  - Sales (local and exports), Valued added
  - Market Entry/Exit
  - Employment, Market Valuations
  - Licensing, R&D, …
- *Producer* Perspective (including producers that "use" copyrighted works)
- Advantage: allows us to assess whether producers benefit from, or are not harmed by copyright flexibilities.

Possible Sectors to examine

Industries identified by USPTO as relying on copyright

5111	Newspaper, periodical, book, and directory publishers
5112	Software publishers
5121	Motion picture and video industries
5122	Sound recording industries
5151	Radio and television broadcasting
5152	Cable and other subscription programming
5191	Other information services (news syndicates and internet sites)
5414	Specialized design services (visual and graphic arts)
5415	Computer systems design and related services (software and databases)
5418	Advertising, public relations, and related services
5419	Other professional, scientific, and technical services (photography and translation)
7111	Performing arts companies
7115	Independent artists, writers, and performers

(NAICS codes)

Possible Sectors to examine

Industries identified by CCIA as relying on fair use

333315	Photographic and photocopying equipment mfg.
3341	Computer and peripheral equipment manufacturing
3343	Audio and video equipment manufacturing
334413	Semiconductors and related device manufacturing
3346	Manufacturing and reproducing magnetic and optical media
454111	Electronic shopping
454112	Electronic auctions
51111	Newspaper publishers
51114	Directory, mailing list and other publishers
51119	Other publishers
5112	Software publishers
5121	Motion picture and video Industries
5122	Sound recording industries …

(NAICS codes)

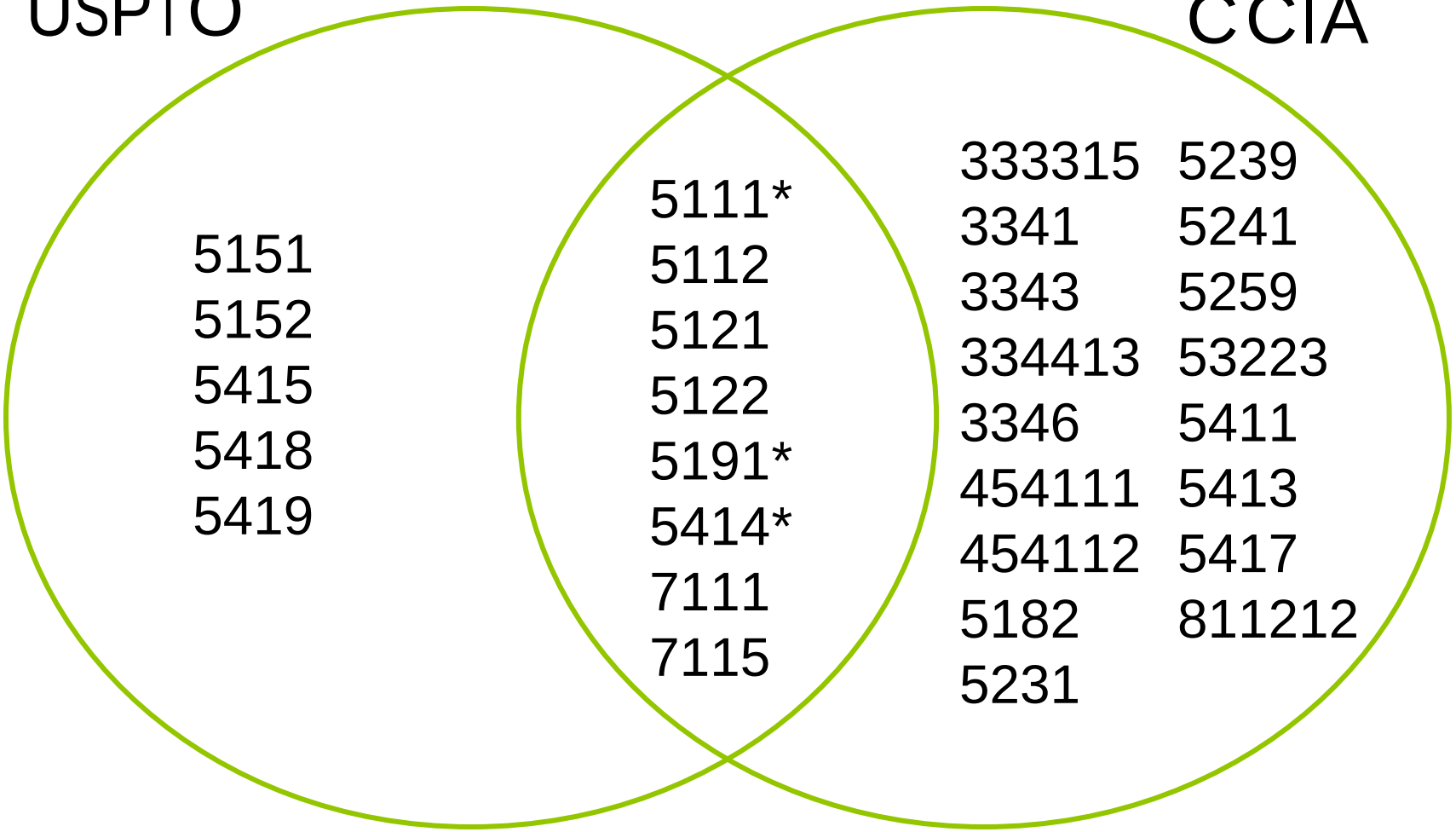
Possible Sectors to examine

Industries identified by CCIA as relying on fair use, Cont.

5182	Data processing, hosting and related services
519	Other information services
5231	Securities, commodity contracts and investments
5239	Other financial investment activities
5241	Insurance carriers
5259	Other investment pools and funds
53223	Video tape and disc rental
5411	Legal services
5413	Architectural, engineering and related services
54143	Graphic design services
5417	Scientific research and development services
6111-6113	Education services (pt.)
7111	Performing arts companies
7115	Independent artists, writers and performers
811212	Computer & office machine repair and maintenance

(NAICS codes)

Possible Sectors to examine (OVERLAP)



* *Indicates inexact (not four-digit to four-digit) match*

IV. Datasets

- Case Studies
- Specific Countries/Regions

- Specific Type(s) of Work
  (where "unit of analysis" can be the work or industry)
  - Books, Films, Recorded Music
  - Software, Broadcasting, …

- Specific Sectors
  - Education (Secondary, Higher)
  - Library, Museums, Archives
  - R&D and Science (Journals, Databases, Images)

IV. Datasets

Patent Data

Benefits

- Identifies novel , potentially useful outputs of innovative process
- Large amounts of data freely available over many years
- Understood and used by international policymakers

Drawbacks

- Some patents cover economically insignificant innovations
- Some significant innovations not patented
- Patenting behavior differs among countries and industries

Ways to Address Drawbacks

- Quality control with citations, patent families, etc.
- Compare within very specific fields of technology
- Find most internationally comparable data (PCT/Families)

IV. Datasets

Patent Data: Types of indicators

Filings or Grants at Domestic Patent Offices

- Problematic for cross country comparisons due to home country biases, the influence of finance & trade flows, and differences between countries unrelated to the innovative process

PCT Applications

- Pros: comparable across countries, good coverage of middle income countries, lacks home bias
- Cons: some PCT applications do not lead to actual patent filings

Triadic Patent Families (US, EU, Japan)

- Pros: highest quality patents. Applicants accepted the time and expense of three domestic filings
- Cons: poor timeliness of data. Lag of 3-4 years

IV. Datasets

International Patent Classification (IPC) Scheme

Hierarchical system for identifying patents by field of technology

- Eight top-level Sections divided into 649 Subclasses
  - i.e – Subclass H04L: "Transmission of digital information"
- Can be further disaggregated into one of approximately 70,000 Subgroups
  - i.e. – Subgroup H04L 9/14: "Arrangements for secret or secure communication using a plurality of keys or algorithms"

Different from standard industry codes (NAICS, ISIC)

- Various concordance systems have been proposed. Smooch (2003) is most cited, but not very disaggregated and perhaps less relevant for new technologies
- Little has been done to date at a very disaggregated level

V. Welfare Analysis (A Sketch)

- Social Welfare = Consumer Welfare + Producer Welfare

- Consumer Welfare
  - Compensating Variation
  - Equivalent Variation
  - Data needs: price, expenditures
  - Assumptions: lots! (re: demand, utility function)

- Producer Welfare
  - Change in Profits of Creators, Users, User-Creators