Science, Economics, and Copyrights

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SCIENCE EDUCATION FOR DEVELOPMENT :
ROLE FOR KNOWLEDGE, TECHNOLOGY, AND POLICIES

Agenda

- ❑ Conceptual Framework
  - How to think about
- ❑ How Copyright Matters to Scientific Research/Education
  - How they interact
- ❑ Refresher on Copyrights
  - Including Economic Rationale
- ❑ Publishers and scientific research/education
  - Key question: do copyrights impede/facilitate access to knowledge?

A. Conceptual Framework

Copyright Regime

Science, Education, Research → Technological Progress → Economic Progress

What is mine? What is shared? What is free? What do I owe? Why can't lawyers get out of the way? J'en ai marre!

B. How Copyrights Matter ...

❑ Commercial Value is HUGE

(Books, Music, Films, Art, Software Programs, Journal Articles, Databases)

❑ Core Industries' value added = $1.8 trillion USD

(Report of *International Intellectual Property Alliance*, 2022)

❑ Value is more if you include Complementary Industries

(those that produce **goods/services** to support creative/scientific work, and produce **inputs** into creative/scientific work)

B. How Copyrights Matter ...

- ❑ PIRACY is a risk

(Knowledge and creative goods are easy to replicate and distribute)

- ❑ Legal Uncertainty

(Copyright laws are complex and lag behind technological developments)

- ❑ Transactions costs for Researchers and Educators

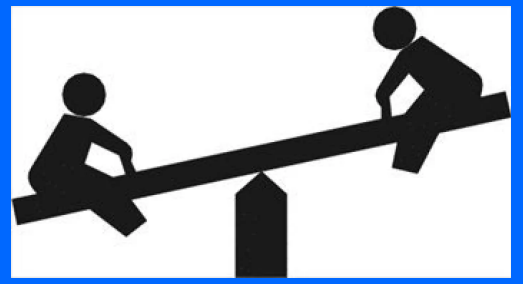
(i.e., navigate copyright issues while trying to educate, pursue knowledge, and be in legal compliance)

C. Copyrights 101

- Exclusive Rights
- Limited in duration (life + 70 years, then public domain)
- Copyright Protection is automatic (cf. patents, *Creative Commons*)
- Protects expression not ideas
- Original work … independent creation is allowed
- Narrow scope (tradeoff between duration & scope). Broad protection imposes transactions costs
- Restrictions exist (fair use, exceptions). Fair use also gives rise to economic enterprises

Economic Rationale

- Knowledge is a public good (non-rival, non-excludable)
- Temporary Monopolistic Profits > Cost of Creation/Development
- Tradeoff: static inefficiency (P > MC) vs. dynamic efficiency (innovation)
- Other Actors: Publishers vs. Libraries



D. Publishing & Education

Does copyright protection *impede* the circulation of knowledge? Or *facilitate* its creation and availability?

Documentary

https://paywallthemovie.com/

Highlights

- Academic publishers make multi billion-dollar profits. Profit margin = 35-40% (greater than that of tech companies like Apple, Facebook, Google).
- Claims that this hurts libraries *(i.e., expensive books & journals)* and harms scientific research.

Who’s right?

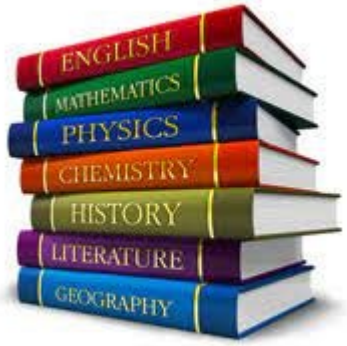
Yes, copyright does confer market power to publisher

- Authors transfer copyright to publisher.
- Publisher has exclusive rights. Supplies *non-competitive* amount of output.
- Textbook prices, journal subscription fees are high. (e.g., $39 for single article)
- Educational institutions, libraries, and research institutions must pay.
- Scholars and libraries in *poor, developing countries* hurt the most.

Who's right?

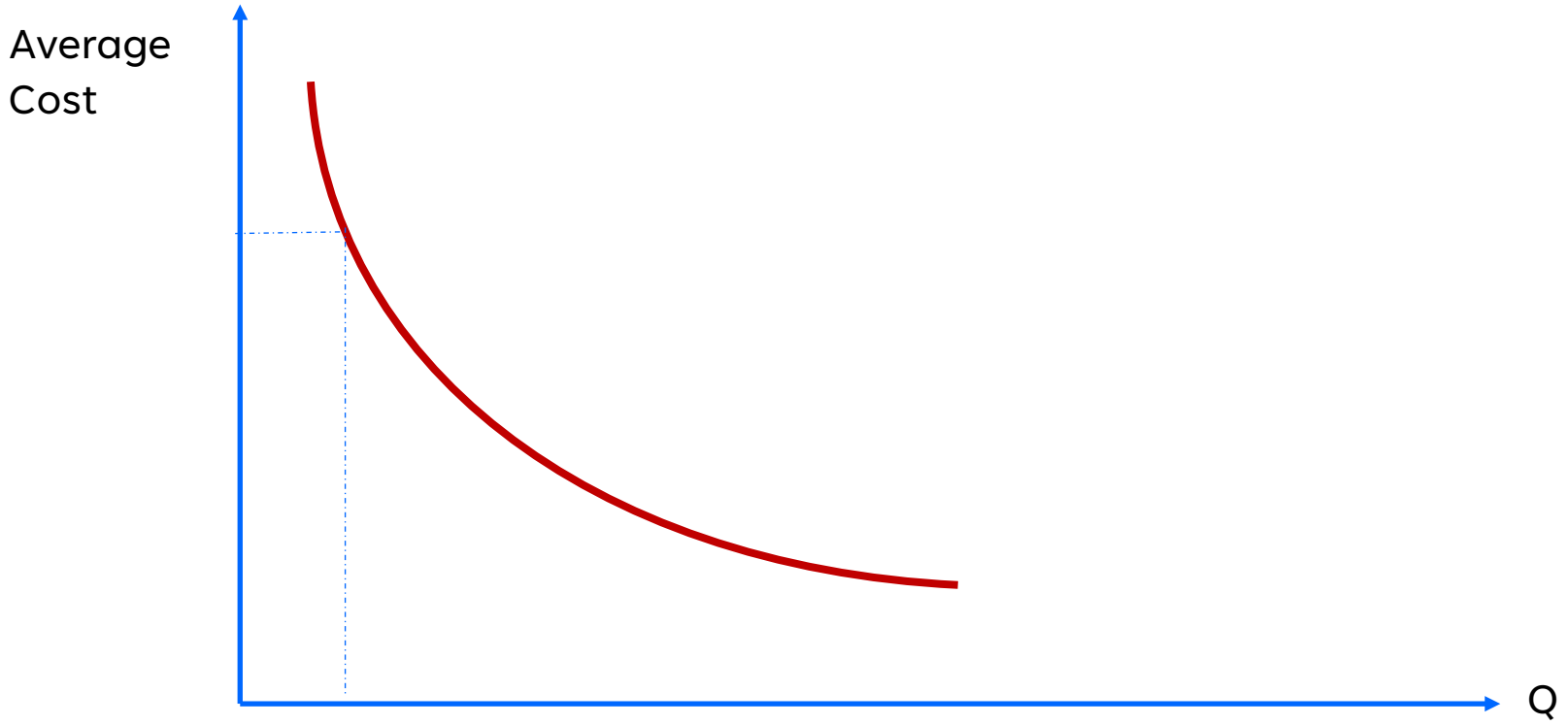
But the issues are more complex …

- Writing textbooks and journal articles is a TEAM effort.
  - Author and publisher work together. Labor, materials, artwork, supplements, like videos, instructional resources, and promotional expenses.
  - Publishers contribute to value-added: editing, designing, and marketing.
  - They give book authors an advance – and take risks with sales.
  - Publishers diversify by investing in multiple books and journals.
  - Similar to film-making (*team effort*).



- Books & articles are easy to copy (imitation and piracy risks are high). Publisher returns could fall and not help recoup investment costs.

Explanations



Why academic books/articles expensive? **No Economies of Scale**

Explanations

Why academic publishers' profits margins relatively high?

$$PROFIT = REV - COSTS$$

Primary Labor Input (scientist-author) is **unpaid**.

Scientist-author pays for the refereeing costs!

Scientist-author's salary comes from the institution (university, institute, or other)

And/or has research grants to cover the cost of research.

Even though unpaid, scientist-author benefits from publication (e.g., reputation, promotion, prizes/grants)

Are scholars hindered by the cost of books/journals?

- In practice, university/institute libraries purchase books & subscribe to journals (i.e., discounts to *bundles*), and scholars access them for free.
- Publishers practice price discrimination. *(Companies charge higher (lower) price to those with less (more) elastic demands.)*
- Open access journals are available. *(Who pays the cost? Author. Readers can access for free. Where does the author get the funds? Grants.)*
- Journals, books are not timely anyway. More up-to-date research is found in working papers, conferences.

… Criticisms

- Journal subscriptions and books may be expensive to small academic institutions or to those in poor countries.
- Price discrimination only works if you can prevent resale. *(Readers can download and share freely. See PIRATE site, SciHub.)*
- Open access fees are not affordable if scholar has no grant funding. Open access journals are not yet as reputable.
- Working papers are not fully peer-reviewed (and established knowledge).

Related Controversy

If research is publicly-funded, should private publishing companies charge the public for journal articles (knowledge created using taxpayer money)?

Things to consider:

- Sponsored grants do include publication/open access fees, but grants mainly cover cost of research: field work, clinical trials, post-docs, conference travel, lab assistants.
- Should medical doctors whose education is funded by public agencies not later charge fees for their services? Some *quid pro quo* is reasonable, but not in perpetuity.
- Publisher's fees cover cost of sale, not research. In future, it will be good to create a **circular flow**: plough back publisher profits to scientific research.

Summary

- Copyrights manage the relationships among scholars, readers (or students), educators, and publishers. They establish rules of the game and ownership rights.
- Property rights help create incentives for research, but exclusivity increases the *market* price of access to knowledge (paywall)
- Paywall problem may be exaggerated: in practice, there are ways around the high cost of books and journals (e.g., libraries, research grants, working papers). But they’re not perfect solutions.
- Real problem is access to data! Databases are expensive. Some are proprietary and confidential. Future research should study **FAIR USE** for data access.