COPYRIGHT AND CREATIVITY

DO STRONGER COPYRIGHT LAWS ENCOURAGE THE DIFFUSION OF IDEAS AND IMPROVE THE QUANTITY AND QUALITY OF LITERARY OUTPUT?

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Copyright laws, which grant authors intellectual property in ideas, are intended to encourage the creation of new ideas. In the United States, copyrights protect the author and his estate for 70 years after the author's death. Proponents of long copyright terms contend that long-lived copyrights stimulate the production of new works (e.g. Liebowitz and Margolis 2003). Critics however, contend that shorter terms may encourage the diffusion of ideas and have minimal effects on the production of new works (e.g. Akerlof et al. 2002).

While the economic theory of copyright is well-developed[1] there is less direct evidence on the effects of copyrights on creativity. For music, contemporary data indicate that violations of copyrights have limited effects on sales (Strumpf and Oberholzer-Gee 2007) and the quantity of recorded music (2011). For books, Khan (2005) documents that a lack of copyright protection for American re-prints of European books in the 19th century was associated with higher prices for re-prints relative to copyrighted American books. Heald (2008) finds that 166 bestsellers that were published between 1913 and 1922 with a copyright term of 75 years were more likely to be in print in 2008 than 168 bestsellers that were published between 1923 and 1932 with a copyright term of 95 years. There is, however, no systematic empirical evidence on the effects of variation in the strength of copyrights on the diffusion of ideas and on the quantity and quality of literary production.

Our proposed project takes advantage of historical variation in copyrights over time and within Britain to examine the effects of changes in the strength of copyright protection on the diffusion of new ideas and on the literary productivity. In Britain, copyright protection was formalized in 1710, when Queen Anne signed *An act for the encouragement of learning*, which granted authors exclusive rights to reproduce their work. This "Statute of Anne" granted differential terms of protection for books that had already been in print in 1710 (exclusive rights for 21 years) and books that were printed after 1710 (14 years, with a 14 year extension if the author was alive after the initial term). Two other Acts of Parliament created similar breakpoints in the strength of copyright protection. In 1814, the Copyright Act extended the length of copyright terms to 28 years, or the author's life, whichever was longer. In 1842, copyright terms were extended to 42 years, or the life of the author plus 7 years, whichever was longer.

As a result of these changes, books published within the same 2-year window were subject to substantially different terms of protection. For example, a book whose author did not survive the initial term received 28 years of protection if it was published in 1841, but 42 years if it was published in 1843. Our proposed analysis will exploit such variation to examine the effects of increases in the length of copyright protection on knowledge diffusion and literary productivity.

The first part of our proposed analysis examines the effects of copyright on the diffusion of ideas. For example, we propose to compare the speed and geographic scope of knowledge diffusion for books that were published in 1841 (with 28 years of copyright protection) and 1842

[1] E.g., Plant 1934, Novos and Waldman 1984, Besen and Kirby 1989, Landes and Posner 2003.

(with 42 years). Diffusion will be measured both at the level of books and at the levels of individual ideas within books. At the level of books, variation in diffusion is captured through variation in the geographic location of later works that cite books published under differential property rights regimes. Such data can be collected through an automatic search of citations in Google Books (www.books.google). At the level of individual ideas within books, knowledge diffusion can be collected through a search for specific key words and phrases. Currently, publicly available data at the level of ideas cover a 4% sample of Google Books (available at http://ngrams.googlelabs.com/datasets), and existing analyses have used these data to examine the development of cultural trends. We propose to extend this data to cover the universe or British books in the 18th and 19th century in chemistry and biology, two disciplines that created substantial amounts of new knowledge at this time. We will use these data to examine effects of variation in copyrights on the communication of important new ideas and organizational innovations in the life sciences, such as the discovery of new dyes and organizational innovations that led to the design of modern research labs in the mid 19th- century (e.g., Haber 1958).

The second part of our project will exploit variation in the strength of copyright protection between England and Scotland to examine the effects of copyrights on the quantity and quality of literary output. This analysis takes advantage of decisions such as *Hinton vs. Donaldson* (1773) and *Donaldson vs. Becket* (1774), which differentially affected the strength of copyright protection in England and Scotland. In *Hinton vs. Donaldson*, the Scots Court of Sessions decided that copyrights did not exist in the common law of Scotland. A few months later, in *Donaldson versus Becket*, the English House of Lords decided that the Statute of Anne replaced common-law protection of published work with copyrights of limited duration, opening the market for reprints of books whose copyright term had expired.[2] Our empirical tests will exploit this setting to examine differential changes in the quantity and quality of literary output before and after 1774 in Scotland and England.

To investigate the effects of such changes on the quantity of creative output, we propose to collect the universe of books published in England and Scotland between 1700 and 1900 from the Integrated Catalog of British Library (http://catalogue.bl.uk). Data on the books title, the author's name, page numbers, year of publication, publisher, and location of publication will be collected through an automated search of the catalogs that we download through a search engine within the Stanford library site. In addition programming in PERL, the data collection will require many hours of cleaning, for example, to eliminate double counts and distinguish multiple print runs of the same book. To measure the quality of books, we propose to collect data on alternative versions of the Western Canon of great literary works created in the 18th and 19th century (e.g. Bloom 1994). To separate changes in incentives for authors from incentives for book sellers (which are mainly motivated by profits rather than prestige), we will collect additional data on the price and quantity of book sales from cultural studies of historical book readership (e.g., St. Clair 2004).

[2] Donaldson v Beckett (1774) 2 Brown's Parl. Cases 129, 1 Eng. Rep. 837; 4 Burr. 2408, 98 Eng. Rep. 257 ; 17 Cobbett's Parl. Hist. 953 (1813)

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