The Effects of E-books on the Publishing Industry

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Introduction

There have been significant changes in the structure of the publishing industry in the past decade as the mode of distribution moves away from brick-and-mortar stores to e-commerce. In the second quarter of 2012, for example, Amazon.com accounted for 27% of total book sales, compared to 20% in the second quarter of 2011[1]. This trend is likely to continue in the future as the full effects of the Amazon Kindle, introduced in November of 2007, and the iPad, released in April 2010, are realized.

The increased availability of a digital version of a book has a number of effects on the structure of the publishing industry. First, the level of competition within and across titles is affected as physical editions share the market for a title with an electronic edition. This affects pricing strategies. Second, the role of a publisher changes as authors need not depend on publishers to select their works and publish them[2]. Instead of producing a physical edition of a title, publishers need to be more concerned about marketing and distributing an author's intellectual products. It is a priori unclear what effect this shift in the publishers' role will have on profits or the degree of concentration in the publishing industry.

My current research in this area has focused on welfare effects of IP and digitization in publishing, including both consumer surplus and producer surplus. In my proposed research agenda for the coming academic year, I plan to focus my analysis on underlying topics in the publishing industry structure, specifically the effects of digitization on pricing strategies and competition. My research to date suggests that the addition of e-books to a title's product line affects both the timing of releasing different products of a product line, and the level of intertemporal price discrimination between consumers of hardcovers, paperbacks and e-books. The increased popularity of e-books also affects how a publisher thinks about secondary markets. While information does not depreciate and a used e-book potentially has the same value as its equivalent new version, a publisher can limit or eliminate the secondary market through digital rights management.

[1] Publishers Weekly, November 5, 2012, page 6

[2] In fact, it is possible to purchase a book that I published with a fellow grad student in order to determine how easy it is to publish through Amazon. The book is available at http://www.amazon.com/Imkes-Tagebuch-German-Edition-ebook/dp/B0048EL5OO. It has sold one copy thus far and as a consequence has entered the Amazon.com rankings at number 142,554 in the paid e-book category.

My analysis will also focus on the level of competition between publishers. This is particularly interesting when a title is in the public domain.

Current Research

My dissertation, *The Effects of Intellectual Property on the Market for Existing Creative Works*, focuses on fiction bestsellers, providing an empirical analysis of the effect of digitization in different IP environments. This research extends the current economic literature on publishing and intellectual property, which focuses on the direct effects of a copyright: less availability (Heald (2008)) and higher costs and higher prices (Li et al. (2012)), but better incentives to make the title accessible in order to obtain monopoly profits (Landes & Posner (1989)). I show with a full structural model of demand and supply that includes entry decisions by publishers that a copyright extension limits a title's availability. This leads to a decrease in consumer surplus while the limited competition increases producer surplus when fixed costs are present (Mankiw & Whinston (1986)). The decrease in consumer surplus outweighs the increase in producer surplus. This result is partly driven by the presence of a zero-price digital option when a title is in the public domain.

In a second project, I am working with Prof. Joel Waldfogel to analyze the broader welfare effects of the digitization of books. A key factor is that improvements in the digitization process have eliminated the need for inventory. The emergence of e-books thus has two potential effects on the publishing industry. First, as the costs of producing a published title are smaller, e-books can be offered at lower prices. Second, as the inventory-related risk of sunk costs disappears, it becomes easier to publish titles in the first place.

In our preliminary analysis, we observe a decrease in average prices per title as well as an increase in the number of available titles over the last few years. This is partly due to the fact that many authors now are able to publish independently through publishing channels such as Smashwords or Amazon[3]. We also observe that sales of physical editions are reduced, but that increases in the sales of e-books more than offset this loss and lead to an overall market expansion due to e-books. Both effects support the hypothesis that e-books are welfare increasing. In our project, we aim at identifying these two effects in a full structural model of supply and demand that determines price elasticities of demand as well as substitution patterns across formats.

Research Plan

The NBER Economics of Digitization Post-Doctoral Fellowship would enable me to dedicate the coming academic year to examining several questions concerning the effects of digitization in the publishing industry. I plan to extend the structural model of supply and demand developed in my dissertation research to examine publishers' pricing decisions in more detail. While the effect of a copyright on prices of books has been studied

[3] For example, *50 Shades of Grey* by E. L. James was sold as an e-book through Amazon over 250,000 times before it was picked up by Random House Publishing. In addition, over 10% of the current New York Times top 100 bestsellers are self-published titles.

in the current economics literature, and while pricing strategies have been examined in other information-intensive industries (Shiller & Waldfogel (2011)), the effect of e-books on the level of competition and pricing strategies has not been examined at length.

Such an analysis needs to take several facets of the industry into account.

First, publishers tend to publish hardcover and e-book versions of a title before they make other formats available. By publishing e-books before paperbacks, a publisher can charge a higher price for the digital version. But the marginal cost of selling an e-book is zero while it is positive for physical editions - thus a lower price for e-books could be expected as well. The interaction between price discrimination and cost differences can be addressed in a structural demand model that allows me to determine own- and cross-price elasticities of different formats of titles.

Second, a dynamic pricing decision depends on the presence of a secondary market. In my proposed model a supplier of an e-book can set the level of a secondary market *and* the price. E-books can either be "resold" a set number of times, or not at all. Physical editions of a title, on the other hand, depreciate at a given rate, and a used copy will have a lower value than the same copy when it is new. An optimal dynamic pricing strategy will depend on the secondary market.

Third, if a title is in the public domain, publishers compete with each other as well as with zero-price digital options. In that case, the timing of a format's release is not as important as the pricing strategies as there already is sufficient competition across formats of a title. Entry and pricing decisions will therefore depend on the title's copyright status as well as on the level of competition within the industry.

In the longer run, of course, the topic of pricing with and without secondary markets, as well as the question of competition, can be extended to several information-intensive industries.

References

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