Superstars and outsiders in online markets: An empirical analysis of electronic books

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\textbf{A R T I C L E   I N F O}

\begin{quote}
Article history:
Received 7 December 2011
Received in revised form 28 November 2012
Accepted 28 November 2012
Available online 8 December 2012
\end{quote}

\textbf{Keywords:}

Bestsellers
Books
e-Books
Cannibalization
Digital outsiders
Econometrics
Economic analysis
Kindle
Print-preferred books
Superstars

\textbf{A B S T R A C T}

Recent rapid growth in electronic book sales has raised a critical question for publishers and bookstores: do e-books cannibalize or increase print sales? In this article, we compare the best-selling titles sold on www.Amazon.com in print or electronic Kindle formats during the period from November 2007 to July 2010. Using econometric methods, we find that the cannibalization of print sales by e-books is more likely to occur for superstar titles written by successful authors. However, we find that a new segment of successful electronic titles that are not best-selling in print format emerge; these books would probably have been unpopular without the new Kindle store and therefore this new distribution channel has expanded the market. We refer to these titles as \textit{digital outsiders}. The latter are characterized not only by lower prices but also by older release dates. They also include titles that are only released in electronic format. We then argue that electronic books increase the market viability of old print releases. Finally we identify a category that we call \textit{print-preferred books} that are top sellers in print but not as e-books for reasons of color, graphics, or the need to navigate non-linearly, a style to which the current generation of e-book readers are not well adapted.

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\section{1. Introduction}

The book industry is facing a new revolution. According to most experts, electronic books (e-books) will shake the industry in the same way that the printing press did.\textsuperscript{1} Recent numbers published by the Association of American Publishers show that 49.5 million e-books have been sold in the United States in 2010 for a value of \$US441 million, an increase of 291\% compared to 2009. Sales of e-books represented 8.3\% of total sales of books in the US in 2010, against 3.2\% in 2009.\textsuperscript{2} Amazon currently sells more e-books for Kindle, their proprietary e-book reader, than print books.\textsuperscript{3} Many actors in the industry view this major technological change with apprehension for various reasons. First, sales of e-books could threaten retail stores selling print books, given the income constraint of consumers. Second, this potential cannibalization of print sales by e-books is reinforced by the entry of new online retailers such as Amazon, Apple or Google. The bargaining power between traditional retail stores and new online merchants is changing the way companies conduct business. For instance, new technologies allow writers to publish e-books directly without signing with a publisher.\textsuperscript{4} Finally, editors and publishers fear illegal copying on the Internet of copyrighted material that could reduce their income.

This article directly addresses the issue of the cannibalization: do e-books cannibalize or instead increase print sales? In this study, we focus on the characteristics of books that are bestsellers in both print and electronic formats, bestsellers in print but not as e-books, and successful as e-books but either currently less successful in print or have no print equivalent. We refer to the first group as \textit{superstars}, the second as \textit{print-preferred} and the third as \textit{digital outsiders}. Paper may be preferred for reasons of color,

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\textsuperscript{2} A press release indicates that: “Since April 1 [2010], for every 100 print books Amazon.com has sold, it has sold 105 Kindle books,” www.gbn.corporate-ir.net/Phoenix.zhtml?prID=15655818&c=1760608&p=irol-newsArticle.
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The issue of cannibalization has now taken a new turn with the increasing availability of digital cultural goods. Indeed, new formats have appeared on the Internet such as digital music (iTunes, Spotify, etc.) or online films and movie downloads (iTunes, Amazon Instant Video, Google Play, Netflix, YouTube, etc.). Likewise, the development of e-books has led to an increasing popularity of the Kindle store. The emergence of these new formats raises a new question: do electronic formats cannibalize or instead increase the sales of physical cultural products that can be sold through physical or online channels? Indeed, consumers not interested in print formats could now be interested in purchasing new electronic formats. This market expansion could not only be the result of decreasing search costs and online communities but could also be driven by a new demand for electronic formats (increased portability, library of books always available, bookmarks and annotations, etc.). The long tail theory should, therefore, be extended to account not only for the effect of online distribution channels on print sales but also the impact of new electronic formats on the variety of cultural products purchased by Internet users.

Several empirical papers have addressed this question. Focusing respectively on the introduction of online newspapers and music, Deleersnyder et al. (2002) and Bijalogorsky and Naik (2003) find a relatively small cannibalization effect on physical newspaper circulation or record sales, though these findings are currently being debated. Koh et al. 2010 show, for instance, that digital music substitutes for physical album sales whereas Nguyen et al. (2012) find that consuming music as streams has no impact on CDs purchases.6 Finally, focusing on videos and TV, Waldfogel (2009) shows that the YouTube platform, which allows users to stream videos online, has only a small negative impact on television viewing. Danaher et al. (2010) find that the iTunes distribution channel has no significant statistical impact on DVD sales.

To the best of our knowledge, few studies have analyzed the market expansion and cannibalization issues in the book industry due to the emergence of an electronic format.7 Jiang and Katsamakas (2010) use a game-theoretic model to study the effects of the entry of an e-bookseller on prices and total book readership. They find that prices in the book market may increase after the entry of an e-bookseller and that the total readership may decrease, if the e-bookseller is owned by one of the print booksellers. In an empirical context, Oestreicher-Singer and Sundararajan (2010) examine the e-book industry but only focus on the pricing strategy of e-book publishers and their choices of technological protection (with or without piracy).

The closest paper to our research is probably Hu and Smith (2011). They study the impact of the decision of a publisher to stop releasing Kindle e-books on the Amazon website. This leads to a natural experiment where a title is initially only available in print format and later on available in both print and electronic formats. These titles can be compared to a control group of titles that were available in both formats during the full period of observation. They find that delaying the release of e-books causes an insignificant change in overall Hardcover sales but a significant decrease in e-book sales, total sales, and likely total revenue and profit to the publisher. Unfortunately, they only have one to eight weeks of observations of titles that were delayed in electronic format compared to 2 months of observations for titles in the control group, which makes a comparison based on sales difficult to interpret. Moreover, they find a negative cross-price elasticity because

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5 Ghose et al. (2006) have especially assessed the impact of used print books on the sales of new print books on Amazon MarketPlace during the period 2002–2003. These authors show that used print books are imperfect substitutes to new ones in the sense that only 16% of used books cannibalize sales of new print books.

6 Zentner (2008) also shows that online music purchases are related to a change in the number of music stores in the United States for the years 1998 and 2002.

7 Huang and Hsieh (2012) show that consumers’ perceived innovative attributes not only directly affect their acceptance behaviour, but also influence behaviour via their perception of switching costs.
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