

E-books: A Tale of Digital Disruption[†]

Richard J. Gilbert

Electronic books are not new. They have existed at least since the launch of Project Gutenberg in 1971, a volunteer effort to create a digital library of books and cultural media in the public domain (OECD 2012), but they occupied a small niche in the book industry prior to the launch of the Amazon Kindle at the end of 2007. The Kindle offered a comfortable reading experience, wireless connectivity, and access to Amazon’s inventory of books. In addition, Amazon’s well-established business selling printed books online gave it ready access to a large set of book buyers, and the company promoted the Kindle e-reader and e-books aggressively.

The rapid adoption of e-books since the launch of the Kindle has become a focus of several controversies in the book industry. One issue is the extent to which e-books are substitutes for printed books, and thus whether they are driving brick-and-mortar sellers of printed books out of business. A second issue is the competitive relationship between e-books and e-readers and whether Amazon as an e-retailer has monopoly power as a seller or monopsony power as a buyer, or both.

A third issue involves the conflict between Amazon and publishers, and in particular their preferences for different industry pricing models. Amazon supported a continuation of the traditional “wholesale” pricing model, in which publishers sold a book to retailers at a wholesale price and retailers set the retail price. Publishers objected to Amazon’s low retail prices and instead supported the “agency” model, in which the publisher specifies the retail price with a commission for the retailer. Publishers were concerned that low e-book prices erode prices for printed books,

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threaten traditional brick-and-mortar book distribution, and strengthen Amazon's influence in the book industry. They backed agency pricing to raise the prices of e-books, and also to facilitate the entry of Apple as a new e-retailer and to support existing e-retailers, such as Barnes & Noble. By doing so, publishers sought to undermine Amazon's dominance of online book sales. The conflict between these pricing models has led to several high-profile legal and contractual disputes, including an antitrust complaint brought by the US Department of Justice and 33 states and US territories against Apple and five major publishers, and lengthy contract disputes between Amazon and publishers, in particular Amazon's dispute with the publisher Hachette that was resolved in November 2014.

E-book Sales

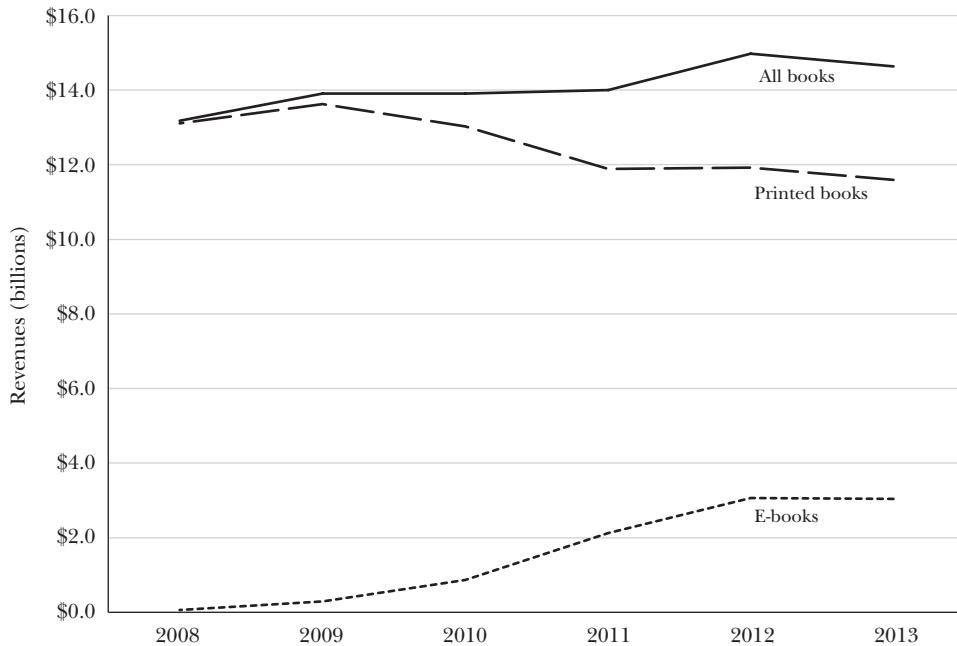
Sales of e-books in the United States increased at triple-digit rates after Amazon introduced the Kindle e-reader, reaching 20.8 percent of revenues and 23.8 percent of unit sales of trade books in both print and electronic formats in 2013. Figure 1 shows this trend. Trade books include adult and juvenile fiction and nonfiction and religious titles. These genres account for about one-half of all book sales. Non-trade books include educational materials and professional and scholarly books (Book Industry Study Group 2011, 2014).¹ Amazon is by far the largest e-book retailer, with about 70 percent of e-book sales in the first quarter of 2012. Barnes & Noble's share of e-book sales was about 20 percent, and Apple sold about another 10 percent through its Apple iBookstore (Gilbert 2013). A few other e-retailers (including Google) had very small shares of e-book sales. These statistics do not count a small amount of direct sales of e-books by publishers. Publishers have generally hesitated to launch and promote their own e-commerce operations because it would put them in competition with their retail partners.

The growth of e-book sales in the few years following the launch of the Kindle e-reader led to predictions that the days of the traditional printed book ("p-book") are numbered. But the growth of e-books has slowed and the share of e-books in total trade book sales was about flat from 2012 to 2013. There are other indications of saturation in the demand for e-books. The fraction of American adults who own either a dedicated e-reader or tablet increased from less than 10 percent in 2010 to about 50 percent by 2014. About 76 percent of adults read a book in any format in calendar year 2014, which implies that most potential e-book readers have already purchased an e-reading device (Zickuhr and Rainie 2014).

It is difficult to know whether the flattening of e-book sales is a pause in an upward trend of e-book sales or an indication that e-books have found their place and that the printed book will continue to be the most popular format. Currently, most people who read e-books also read printed books, and many readers prefer the

¹ Unless stated otherwise, all data references in this article are for US sales and are from this source.

Figure 1
Sales of Trade E-books and Printed Books



Source: Book Industry Study Group (2011, 2014).

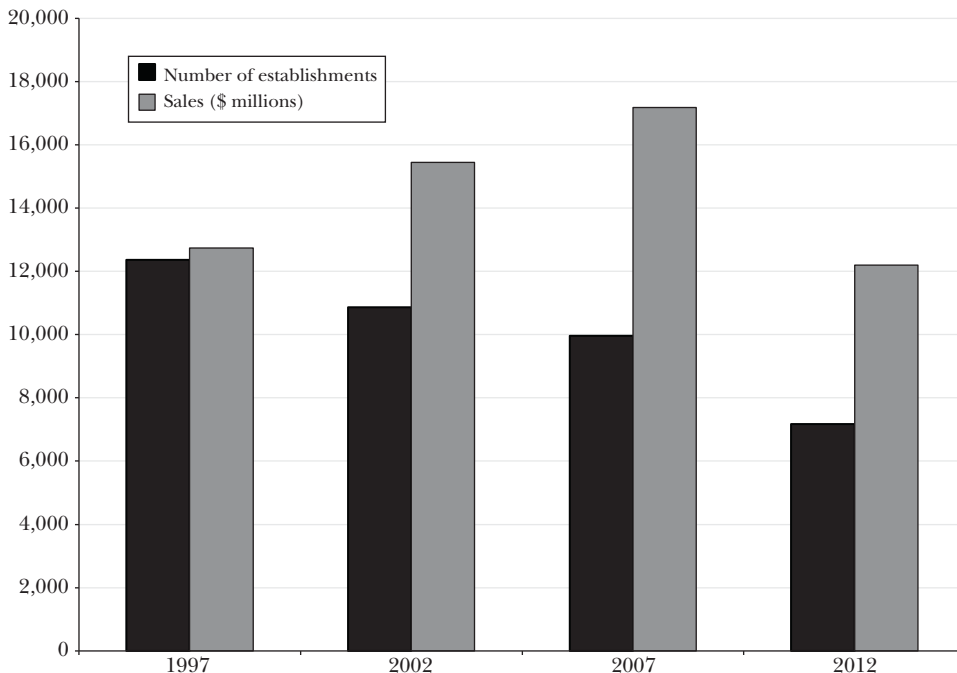
Notes: Trade books include adult and juvenile fiction and nonfiction and religious titles. These genres account for about one-half of all book sales. Non-trade books include educational materials and professional and scholarly books.

look and feel of a printed book. Of course, preferences may change as consumers become more accustomed to electronic readers and new e-reading technologies improve the digital experience. Another factor that can affect the diffusion of e-books is the use of digital rights management (DRM) by publishers and e-vendors. DRM technologies currently limit the ability of readers to share their e-books, and changes to DRM that permit more flexible sharing could enhance future e-book usage (Bläsi and Rothlauf 2013).

The Impact of E-books on Traditional Booksellers

E-books are only one of many industry developments that have challenged the economics of the corner bookstore. Independent booksellers had already suffered fierce competition from chains, mass merchandisers such as Walmart and Costco, and online printed book sales before e-book sales achieved commercial significance. The number of booksellers declined from 12,363 in 1997 to 9,955 in 2007, a reduction of almost 20 percent (US Census, *Monthly and Annual Retail Trade Report*, 1997,

Figure 2

Number of Bookstores and Total Sales at Bookstore Establishments

Source: US Census, Economic Census of the United States and Monthly Retail Trade Survey, 1997–2012.

2007). From 1994 to 2007, out of total employment in brick-and-mortar bookstores, the share with nine or fewer employees fell from about 38 to 18 percent; conversely, the share of employment in bookstores with more than 50 employees increased from about 12 to 38 percent (Lieber and Syverson 2012). Sales of e-books were a tiny fraction of all book sales prior to 2007 and could not have had a significant impact on the profitability of independent booksellers in this period.

However, even if e-books could not possibly have contributed to the decline of independent bookstores before 2007, such an effect could have occurred since then. Figure 2 shows the number of book-selling establishments and total sales (of all items) at these establishments from 1997 to 2012. The number of booksellers fell to 7,177 by 2012, a 28 percent reduction from 2007. Sales at physical bookstores peaked in 2007, just before Amazon launched the Kindle. More recent establishment data are not available, but sales at physical bookstores have continued to decline, falling to \$11.4 billion in 2013 and \$10.9 billion in 2014. Online sales accounted for about 40 percent of all trade book sales in 2013, and on a unit basis roughly two-thirds of online sales in 2013 were e-books.

The data show that the number of brick-and-mortar booksellers and total sales at these establishments declined while online sales of all books rose, but further

analysis is needed to reveal whether e-books are the primary cause for the demise of physical booksellers and whether independent bookstores in particular have felt the brunt of online competition.

As part of such a fuller analysis, it is important to recognize that e-books may either substitute for sales of p-books or else may be incremental sales that would not otherwise have occurred. Hu and Smith (2013) explore this question by exploiting events in 2010 when several publishers delayed the release of a number of their e-book titles. The authors found that on average the withholding of e-books resulted in a permanent loss of cumulative e-book sales and a small (and statistically insignificant) increase in the sales of the corresponding hardcover book. There was a wide variation in consumer responses depending on awareness for individual titles as well as characteristics of the printed book, such as weight and page count. Withholding of e-books for titles with low awareness resulted in a loss of hardcover sales in addition to the loss in e-book sales, while for the most popular titles, withholding the e-book resulted in a significant substitution to sales of the printed book.

In a different study, Li (2015) uses data on the shopping behavior of Internet users to evaluate the substitution between purchases of e-books and paperback books. Estimating a demand model and counterfactually assuming the absence of e-books, she concludes that on average over the period 2008–2012, 42 percent of e-book sales occurred at the expense of sales of paperback books and the remaining 58 percent of e-book sales were incremental sales that would not have occurred if e-books were not available. These findings are consistent with the Hu and Smith (2013) evidence that, on average, withholding e-books tended to reduce total book sales.

These studies find that, on average, e-books expand book sales, but they do not identify the cause of the incremental demand. E-books cost less than their corresponding printed versions, and the incremental demand could be driven solely by price. Alternatively, consumers could have strong preferences for books in the digital format, or the increase in demand could be driven by a combination of price and format preferences.

As a rough estimate of the impact of e-books on brick-and-mortar booksellers, first note that 550 million trade e-books and 1.76 billion trade p-books were sold in 2013 (Book Industry Study Group 2014). Suppose one-half of e-book sales substituted for sales of printed books (a high estimate given the results of the cited empirical studies). Then, if e-books did not exist, sales of p-books would have increased by 275 million to about 2 billion units. Under these assumptions, the sale of e-books lowered total unit sales of printed books by all booksellers by about 14 percent in 2013.

It is likely that online sales of printed books absorbed much of this substitution because for many consumers online sales of p-books are close substitutes for e-books. It is also plausible that book chains and mass merchandisers were impacted more than independent booksellers because the large bookstores stores compete more directly on price with online sellers of printed books. Indeed, the surge in online book sales coincided with the demise of major chains such as

Borders and B. Dalton. Thus, it is likely that e-books lowered sales of p-books by independent booksellers by no more than about 14 percent in 2013 (relative to the hypothetical situation of no e-books).

E-books cannibalize the sales of some printed books, but the growth in sales of digital books is only one of many factors that have affected the profitability of independent booksellers. In a counterfactual world without e-books, independent booksellers would still have to contend with competition from chain bookstores, mass merchandisers, and online sales of printed books. It is also likely that many e-book sales are incremental to p-book sales, which should provide some comfort to authors and publishers.

Independent booksellers are enjoying a modest recovery. Membership in the American Bookseller Association reached a low 1,401 in 2009 but has rebounded to 2,094 members in 2013 (Karabell 2014). Some of the recent increase in the number of independent booksellers can be attributed to the Borders bankruptcy in 2011, which left a gap in retail bookselling establishments for independent booksellers to fill.

The future of the independent bookseller ultimately will depend on how consumer tastes evolve for books in digital formats and how new technologies may enhance the e-book reading experience. The recent flattening of e-book sales suggests that consumers will continue to enjoy printed books for years to come and the independent bookseller will not soon disappear from the retail landscape.

E-Readers and E-Books: A Platform Market?

E-books and e-readers are complementary products in a market that connects authors to readers. In some circumstances complementary products (or services) are components of a “two-sided” or “platform” market. I use these terms interchangeably, although the platform terminology applies more generally to many complements. An example would be a video game market, where a platform—say, the PlayStation—has to attract both video game developers and video game players. Complementary components in the PlayStation example are the PlayStation itself and the games. In the e-book example, complementary components are the e-reader and the e-books.

A key characteristic of a two-sided market is that purchases of one component affect consumers who purchase the other component (Rysman 2009). In a two-sided market, a firm that offers both components chooses different price-cost margins to manage demands for the components in order to increase transactions and profits (Rochet and Tirole 2006). Examples include negative prices (“rewards”) for consumers to use some credit cards and positive price-cost margins for the merchants that accept the cards, and zero prices for Internet search along with positive price-cost margins for search-related advertising.

Reimers and Waldfogel (2014) examine whether Amazon treats its e-books and e-readers as components of a two-sided market. They compare Amazon’s price-cost

margins for e-books to its margins for printed books. If the e-book and e-reader were components of a two-sided market for electronic books, the price-cost margins for e-books should differ from the margins for sales of p-books because Amazon would choose e-book prices taking into account the effects on consumers of e-readers. Two-sided pricing is irrelevant for printed books, which do not require the purchase of a complementary reading device.

The authors test this proposition by estimating the elasticity of demand for e-books and p-books sold by Amazon along with estimates of Amazon's wholesale marginal costs. If there are no platform effects, the price-cost margin for each product should satisfy what is called the "Lerner condition" for single-product profit maximization. If M is the price-cost margin, P is the price of the book, and e is the magnitude of the elasticity of demand,² the corresponding Lerner conditions for p-books and e-books are:

$$\frac{M_p}{P_p} = \frac{1}{e_p} \quad \text{and} \quad \frac{M_e}{P_e} = \frac{1}{e_e},$$

where the subscript " p " denotes printed books and the subscript " e " denotes the corresponding quantity for electronic books.

Reimers and Waldfogel find that Amazon prices e-books below the level that would maximize Amazon's profits solely from its e-book sales. However, they find a similar result for Amazon's sales of printed books: Amazon sells p-books at prices below the level that would maximize its profit solely from its printed book sales. Their results suggest that Amazon does not price e-books differently because they are components of a two-sided market for digital books.

Compatibility, Installed Base, and Capture for E-Books

Low prices for e-books or e-readers could be a prelude to much higher prices after customers have become habituated shoppers or the e-retailer has amassed a large installed base of users who are locked in to a proprietary e-reader format. This "capture" strategy could involve high prices for e-books (Gans 2012; Johnson 2014; Bittar 2014) or e-readers (Gaudin and White 2014). For example, an e-retailer could choose low e-reader prices and high prices for e-books to "meter" demand, much as manufacturers of printers choose high prices for their proprietary ink cartridges and low printer prices. Metering allows a firm to obtain greater revenues from consumers who buy more e-books.

A capture strategy requires that consumers be captive to an e-reading platform that is not compatible with other platforms. Otherwise, in response to higher prices for e-books or e-readers they would purchase e-books from another e-retailer and perhaps switch devices. To date neither Amazon nor Barnes & Noble—the two

² The elasticity e is the magnitude of the percentage change in Amazon's sales in response to a percentage in Amazon's price. It is not the overall industry demand elasticity.

largest retailers of e-books—has pursued a strategy to lock its readers into the use of its proprietary e-readers. Both have “apps” that allow their e-books to be accessed using Apple or Android devices. Among the major e-retailers, only Apple limits its customers to using its proprietary e-readers to access a book purchased from its iBookstore. However, Apple has not been particularly successful as an e-retailer, despite the popularity of the iPad as a device to read e-books.

Amazon, in particular, could raise prices and profit from a capture strategy if existing Kindle users are wedded to the Kindle platform and if higher prices do not deter consumers from purchasing Amazon’s e-books and e-readers. To compete against such a strategy, existing e-book retailers would have to convince current or prospective Kindle users to purchase new e-books from their bookstores to be read on their e-readers or compatible devices. New entrants into e-retailing can source e-books from wholesalers such as Ingram and Baker and Taylor, but they would either have to offer their own e-readers or convince consumers to download apps to read their e-books on Apple or Android devices.

These impediments to competition for e-retailing are significant, but they are not so large as to sustain monopoly prices for e-books or, for that matter, monopoly prices for online sales of printed books. The retail market for e-books does not display the intensity of brand-specific network effects that allows suppliers in industries such as computer hardware and software to profit from a large installed base of users. Many consumers would abandon the Kindle platform if Amazon’s e-book prices were not competitive with prices available from other e-retailers. Furthermore, it is likely that consumers would switch to a different e-book platform if they anticipate that the cost of upgrading to a newer Amazon e-reader will not be competitive with the cost of e-readers from other vendors, taking into account the expected cost of purchasing e-books from these alternatives.

The evidence is consistent with the view that Amazon sets low prices for both e-books and p-books to attract consumers to its website, where they can purchase any of the plethora of other items that Amazon sells itself or for which Amazon acts as an agent for merchants that sell in the Amazon Marketplace (Stone 2013). It is in this respect that Amazon operates a platform market, choosing low e-book prices to maximize total transactions on the Amazon.com platform.

Amazon’s Monopsony Power as an E-Retailer

Amazon accounts for at least 30 percent of all trade book sales in print and digital formats, and some sources put the figure in excess of 40 percent (Milliot 2014). A large share of book sales and the absence of alternatives that can easily substitute for sales on Amazon.com could give Amazon *monopsony* power as a buyer of e-books and p-books.

A concern is that the exercise of monopsony power by Amazon will reduce the supply of books below socially optimal levels or have an adverse impact on their quality. The supply of books is socially optimal when the incremental benefit from another book equals the incremental cost of producing the book. This optimality

condition holds for both the sales of a particular book title (the intensive margin) and the number of titles (the extensive margin).

In the textbook description of monopsony, the supply of an input is an increasing function of its price. The cost of another unit to a firm with monopsony power is the price of the unit plus the additional amount the firm pays for all the other units it buys because an increase in demand raises the price. As a result, the firm exercises monopsony power by buying less than the socially efficient quantity to lower its costs, which in turn results in a reduction of output (Blair and Harrison 1991; Carlton and Perloff 2005).

The exercise of monopsony power for sales of a particular e-book title differs from the textbook model because the supply of the e-book is not an increasing function of its price when publishers license their e-books for sales by e-retailers at a uniform wholesale price. Consequently, holding the number of titles fixed, Amazon has no incentive to affect sales adversely on the intensive margin by reducing its demand for an e-book in order to lower its wholesale price.

Nonetheless, Amazon could seek to exploit its power as a large buyer to obtain low wholesale prices, rebates, or other concessions from its suppliers, and a credible concern is that Amazon will continue to press its suppliers for better terms. Publishers complain that at Amazon, today's wholesale price is the starting point for tomorrow's negotiations. Holding the number of e-book titles constant, a low wholesale price is socially desirable because the social marginal cost of reproducing and licensing another unit of an e-book for sale is close to zero. Consumers also benefit from low wholesale prices to the extent that they suppress retail prices.

In contrast to the supply of units of a particular e-book, the supply of book *titles* depends on prices. Retail prices are correlated with wholesale prices and affect revenues from the sale of printed and digital books. These revenues in turn affect the earnings of publishers, which fund author royalties and book promotions. A lower retail price reduces the revenues earned by a book if the price elasticity of demand for sales of the book is less than one, meaning that a percentage increase in the price of the book induces a less than proportional increase in demand. An Amazon press release claims, to the contrary, that publishers benefit from low e-book prices because the demand for e-books is highly price elastic.³

Amazon's claims about the price elasticity for e-books are unproven and do not account for the displacement of p-book sales by e-books. Authors and publishers are concerned that Amazon will use its clout to negotiate to pay publishers lower prices for e-books, leaving less for publishers to offer authors as royalty income, as well as to fund promotions and to retain as profit. However, low wholesale book prices are of no value to Amazon if they result in little content for Amazon to distribute. Furthermore, calculation of the welfare effects from low wholesale e-book prices should

³ "It's also important to understand that e-books are highly price-elastic. This means that when the price goes up, customers buy much less." The Amazon Books team, Update re: Amazon/Hachette Business Interruption, available at http://www.amazon.com/forum/kindle?_encoding=UTF8&cdForum=Fx1D7SY3BVSESG&cdThread=Tx3J0JKSSUIRCMT, accessed May 24, 2015.

weigh the harm to consumers on the extensive margin from fewer book titles against the benefit to consumers on the intensive margin from greater sales of the books titles that are produced.

Disintermediation: Vertical Integration into Publishing

Publishers have the additional concern that they will become an antiquated and redundant component of the book industry as Amazon increasingly deals directly with authors to supply books. Publishers fear that Amazon will “disintermediate” the supply chain, replacing the traditional role of publishers to source and distribute content. Amazon Publishing already features more than a dozen imprints that specialize in publications such as literary fiction, nonfiction, and self-help books. The entry of Amazon and other e-retailers such as Apple into a business in which the e-retailer acts as an agent for authors who utilize the e-retailer’s platform to self-publish their work is an example of backward vertical integration in the supply chain for books.

E-books provide a low-risk format for self-publishing because fixed costs are low, there are no inventory costs, and e-books are easily replicated to meet demand. By accessing authors directly, Amazon and other electronic publishers can increase the share of revenues available for author royalties and give authors easy access to potential readers, but typically without the promotion that traditional publishers might offer. Authors have embraced these opportunities and self-published books account for an increasingly large share of sales of e-books as well as online sales of printed books. In April 2013, five of the ten best-selling e-books were self-published (Greenfield 2013).

Publishers and some authors have raised concerns that Amazon’s efforts to promote self-published books will discourage the production of creative works. This reflects a belief that Amazon’s pursuit of profits as a publisher will fail to produce the quality of book content that readers desire and, by competing head-to-head with traditional publishers, Amazon will erode the margins that traditional publishers require to source and promote high-quality books.

Market forces do not necessarily produce the level of product quality that benefits consumers, as the pioneering work by Spence (1975) explained. When products such as books are sold at a uniform price, revenues are driven by the preferences of consumers who are on the margin between making and not making a purchase. However, the content of a book affects all of its readers, not just those on the purchase margin. When consumers who are not on the purchase margin have preferences that differ from the preferences of the marginal consumers, market incentives to supply the relevant nonprice attributes can differ from socially efficient incentives. Compared to socially optimal levels, the market can supply too little quality, or too much.

Amazon and traditional publishers have market incentives to produce creative content to sell books, but these market incentives may result in a poor selection of published books to the extent that the publishers focus on the choices made by

readers who are on the margin between buying and not buying their books and not on the welfare of all readers. The concerns expressed by publishers and authors imply that Amazon's pursuit of marginal sales will diminish the quality of the books it sells, although they have not articulated why these incentives should be different for Amazon than for traditional publishers.

Self-publishing is not a perfect substitute for the services of major publishers, which include quality control, editing, promotion, and, for printed books, access to brick-and-mortar bookstores. Demand for these services will continue and assure a role for major publishers, although that role is likely to become more confined to potential blockbuster titles that account for a significant share of book sales. Smaller publishers also can remain viable despite the surge of self-publishing, provided that they develop and maintain a brand reputation as a source of supply of titles that appeal to segments of the reading public.⁴

Publisher Strategies to Confront Amazon's Buyer Market Power

Publishers have sought ways to reduce Amazon's influence in book distribution, either by restricting e-books to a smaller market niche or by encouraging Amazon to set higher e-book prices. Several publishers delayed, or announced plans to delay, the release of their e-books in an attempt to limit what they perceived as cannibalization of their print sales (Rich 2009). Macmillan delayed the release of several titles in 2009, including a volume in the popular "Wheel of Time" fantasy series. Simon & Schuster delayed the release of the e-book editions of about 35 major titles by four months in the first half of 2010. Hachette announced plans to delay the release of many of its e-book titles during that time period, and was joined by HarperCollins and Macmillan announcing they would do the same for some of their titles.

This "windowing" strategy has a parallel in the way that publishers control printed book formats. Publishers initially perceived softcover books as a threat to their traditional business. They resolved the threat by delaying the release of paperbacks and in the process implemented an effective method of price discrimination. However, the analogy between e-books and softcover printed books is imperfect. The paperback book is essentially the same product as its hardcover sibling with a relatively small quality differential. The e-book is a different product than a printed book and a significant fraction of e-book sales are incremental to printed book sales. Moreover, the delayed release of e-books encourages piracy to fill the void left by titles that are withheld from the market. After a flurry of actual and threatened delays, publishers stopped windowing their e-book releases, reflecting a belief that the strategy risks permanently losing or significantly delaying sales that they would have made otherwise.

⁴ Although I consider how monopsony power may affect the supply of e-books, this article does not address the public policy concerns that may arise from Amazon's commanding position as an e-retailer and its various practices.

An alternative strategy that publishers considered to address their concerns about low e-book retail prices is to increase their wholesale prices. E-books typically have a lower wholesale price than p-books to reflect their lower production costs. Some publishers experimented with raising the wholesale price of their e-books to the wholesale price of the p-book (Cote 2013b). However, this strategy failed to move Amazon from its prior commitment to a \$9.99 price for many new releases and best sellers; moreover, Amazon could neutralize an attempted price increase by a single publisher by refusing to promote the publisher's titles. Furthermore, an effort to raise e-book prices by a single publisher would not address broader concerns about the threat of low e-book prices to the traditional book retailing industry and would not address Amazon's commanding position as an e-retailer.

Yet another alternative is for the publisher to control the retail prices of its e-books directly. In this pricing model, Amazon and other e-retailers would become agents of the publisher, selling e-books at prices set by the publisher and retaining a commission for their retailing services. By setting a sufficiently high retail commission, publishers sought to promote the entry of new e-retailers and assure the profitability of existing e-retailers such as Barnes & Noble. Greater retail competition would undermine Amazon's monopsony power for sales of e-books and online sales of printed books, and the retail commission would facilitate the publishers' goal of raising e-book retail prices.

This "agency" pricing model raises issues similar to the classic problem of "resale price maintenance," for which an upstream supplier determines or sets bounds on the retail price. Both involve maintaining a retail margin. A distinction is that agency pricing specifies both the retail price and the margin retained by the retailer for its services.

Neither resale price maintenance nor agency pricing necessarily offends the antitrust laws. In a recent case, *Leegin Creative Leather Products, Inc. v. PSKS, Inc.*, (551 US 877 [2007]), the US Supreme Court recognized the economic argument that resale price maintenance can have pro-competitive effects by promoting retail services and thereby allow the firms that use these services to be more effective competitors, while also noting that the practice has the potential to harm consumers. Similar arguments apply to agency pricing. Both resale price maintenance and agency pricing are examples of "vertical restraints," in which firms at one level of the supply chain determine prices or other conditions of sale at a different level of the chain. Vertical restraints differ from fixing prices among competitors at the same level of the supply chain, which is generally condemned as unlawful.

Many industries operate on a wholesale pricing model, while others use agency pricing, and some firms use both. Apple uses agency pricing for apps, allowing app developers to set their prices while providing Apple with a revenue share for placement on the iPad and iPhone. In contrast, Apple employs wholesale pricing for its iTunes store, paying music suppliers a wholesale price for their content and setting the retail price itself. Amazon employs agency pricing for its "Marketplace," which allows merchants to sell their products on the Amazon.com website.

Tradeoffs in Wholesale and Agency Pricing

Most publishers of printed books use a wholesale pricing model for sales to brick-and-mortar bookstores. They sell books to these retailers at a wholesale price equal to a discount off the suggested retail price, and retailers are free to set their own prices. Many retailers sell the book at its suggested retail price. Chain bookstores and mass merchandisers often price books more aggressively, particularly for new releases and selected titles that have the power to attract customers to their stores.

Publishers initially applied the wholesale pricing model to their e-books, too. Amazon priced many popular “front-list” titles and best sellers at \$9.99, which was often below the wholesale price of the e-book. Publisher and author objections to Amazon’s low prices may seem odd to economists who are sensitized to the potential costs imposed by a traditional wholesale pricing model. If a publisher sells a book to a retailer at a wholesale price, W , which is a mark-up over its production cost, economists expect the retailer to add its own mark-up, M , to arrive at the retail price, $W + M$. This “double-marginalization” reduces sales and lowers the profits available to the publisher and the author.

In the short run, a low retail margin is good for authors and publishers. Publishers sell more books; and authors, whose royalties are based on the wholesale price, thus earn more royalties. However, publishers complain that low e-book prices cannibalize their sales of printed books and jeopardize the brick-and-mortar bookstores that promote their bestsellers. Publishers and some authors are concerned that Amazon will use low retail prices as a bargaining lever to negotiate lower wholesale prices, squeezing publisher revenues and author royalties. Publishers sought agency pricing to exercise greater control over e-book pricing.

Economic theory does not offer a general conclusion as to whether firms in a vertical relationship, such as publishers and e-retailers, or their consumers are necessarily better or worse off with agency pricing compared to wholesale pricing. The comparison depends on numerous industry factors. When firms share a common objective to maximize the profits from a vertical relationship, they can choose the pricing arrangement that maximizes their joint profits and then bargain over their respective shares. In that case, the choice between wholesale and agency pricing is a decision about whether pricing authority should vest in the upstream firms that supply a good or the downstream firms that retail the good in order to maximize joint profits. If agency pricing yields more total profit, then each publisher, acting alone, would prefer the agency pricing model, which can be structured to provide a retail margin that generates at least as much profit as the retailer would have earned with wholesale pricing.

If the upstream industry is highly competitive, but competition at the downstream retail level is weak, firms can achieve higher industry profits by delegating pricing to the downstream firms (Foros, Kind, and Shaffer 2013). Delegating pricing authority to downstream retailers can be accomplished with a wholesale pricing structure. Allowing downstream firms to determine prices may incur double-marginalization, but that outcome can be avoided by sharing revenues with retailers after they set

prices or by providing nonlinear pricing incentives such as volume discounts to encourage retailers to set lower prices.

In contrast, if downstream retailing is highly competitive compared to competition upstream, industry profits can be higher if the upstream firms have the authority to set retail prices. Agency pricing or resale price maintenance allows the upstream firms to determine retail prices. Other factors also influence the profit-maximizing locus of pricing authority. For example, retailers may be better able to set profit-maximizing prices if they have better information about market demand.

Complicating the economic evaluation between wholesale and agency pricing for the e-book industry was the lack of a common objective to maximize profits from the sale of e-books. Amazon sought low e-book prices in part to attract more consumers to its website. Publishers sought higher e-book prices to protect their traditional brick-and-mortar distribution business and, more significantly, to create retail competition in order to parry Amazon's relentless drive to reduce its wholesale acquisition costs. These divergent preferences impeded attempts to move Amazon to agency pricing in bilateral negotiations with individual publishers.

The Apple Agency Contract and the Antitrust Case against Apple and Five Publishers

In the months preceding Apple's launch of the iPad in April 2010, Apple and five major publishers—Hachette Book Group, HarperCollins, Macmillan, Penguin, and Simon & Schuster—negotiated similar agency contracts that allowed each publisher to set retail prices for newly released e-books and the e-book versions of *New York Times* bestsellers, subject to price caps, and allowed Apple as the retailer to keep 30 percent of the retail price. The price caps were related to the retail price of the corresponding hardcover book. For example, the e-book price cap was \$12.99 for a title with a hardcover retail price between \$25.01 and \$27.50 (Gilbert 2013).

On April 11, 2012, the US Department of Justice together with 33 states and US territories filed a complaint alleging that Apple and the five publishers had conspired to raise, fix, and stabilize the retail price for newly released and bestselling trade e-books. The case alleged that the five publishers, with the assistance of Apple, overcame Amazon's resistance to agency pricing by acting jointly to require Amazon to accept agency pricing or else do without their e-books (US Department of Justice 2012). Although Apple's relationship to the publishers is vertical as a retailer of their e-books, the allegation was that Apple facilitated collusion among the five publishers to adopt the agency model, with resulting higher prices for e-book consumers.

The Apple agency contracts with the five publishers included a "most favored nation" clause, which gave Apple the right to sell their e-books at the lowest retail price charged by any of the publishers' e-retailers, while retaining a commission for the sale. The most-favored-nation clause discouraged publishers from selling their e-books to e-retailers that would set retail prices below the levels specified in the agency contracts and, as a result, made it easier to convince Amazon to accept agency pricing.

The federal and state governments' case against Apple and the publishers did not challenge the agency pricing model itself, nor did the case allege that the most-favored-nation provisions in the agency contracts are inherently anticompetitive. In fact, contracts often include most-favored-nation provisions. Their effects depend on the circumstances in which they are deployed (Crocker and Lyon 1994), and courts have upheld most-favored-nation clauses in a variety of contexts (Steuer 2015; Dennis 1995).

A complication in the e-books case is that the collusion that was alleged and challenged was not collusion to raise agency prices, but instead was collusion to facilitate a transition from wholesale pricing to agency pricing, in a situation where either approach could be an equilibrium industry model for e-book pricing. A further complication is that, while agency pricing raised e-book prices to consumers, under the agency formula adopted by Apple and the publishers, the publishers earned less on many of their e-book sales than they earned with wholesale pricing, at least in the short run.

The publishers adopted agency pricing in part to sponsor the entry of Apple's iBookstore as a new e-retailer and to increase competition from other e-retailers to undermine Amazon's monopsony power.⁵ In this respect, one might argue that the move to agency pricing was pro-competitive. However, the intent and effect of agency pricing was to increase the prices that consumers pay for e-books. Comparing prices of e-books in the window one week before the switch to agency pricing with prices one week later in Gilbert (2013), I found that on average, the publishers' retail prices increased by 18.6 percent at Amazon and 19.9 percent at Barnes & Noble. Although the agreements were limited to new releases and *New York Times* bestsellers, prices for the agency publishers' other e-books increased by similar amounts over this period.

Random House resisted the move to agency pricing when the five major publishers reached their agreements with Apple, but then moved to agency pricing more than a year later. Using e-books sold by Random House as a control and adding other explanatory variables and fixed effects, Ashenfelter (2013) compared e-book prices six months before the switch to agency to prices in the ensuing six-month period. He concluded that the switch to agency increased e-book retail prices by an average of 16.8 percent and lowered sales by 14.5 percent. Alternative specifications using different pre- and post-agency windows produced similar results.

Subsequent to the US Department of Justice complaint, the five publishers entered into settlement agreements that terminated their agency contracts and prevented the publishers from restricting the right of any e-retailer to set the retail price of their e-books for a period of about two years, in effect reinstating the wholesale pricing model in this two-year period (Cote 2012, 2013a, 2013c). De los Santos and Wildenbeest (2014) utilize these agreements to provide an additional difference-in-differences test of the effects of agency on the prices of e-books. They

⁵ Apple sought agency pricing to improve the economics of the iBookstore, a feature of the iPad. The launch of Apple's iPad did not depend on the viability of the iBookstore (Cote 2013b).

compared publishers' prices in the period during which the settlement agreements compelled a return to the wholesale model with their prices when publishers employed agency pricing. They found that retail prices at Amazon decreased on average by 17 percent after the settlement agreements allowed Amazon to regain control of prices, while Barnes & Noble's prices decreased by 7 percent, compared to the period with agency pricing.

The publisher settlements left Apple as the sole remaining trial defendant in the governments' e-book case. On July 10, 2013, Judge Denise Cote held that Apple participated in and facilitated a horizontal price-fixing conspiracy to raise the price of e-books in violation of the antitrust laws.⁶ The court of appeals affirmed the verdict.

New E-Book Pricing Arrangements: Unilateral Moves to Agency Pricing?

The settlement agreements negotiated with the five defendant publishers allow the publishers to enter into agency contracts after about two years, with certain limitations. The agreements expire after five years.

In October 2014, soon after the expiration of the two-year window in the settlement agreement, Amazon and Simon & Schuster agreed to a new multiyear contract under which Simon & Schuster sets the retail prices for its e-books. The contract also provides unspecified incentives for the publisher to deliver lower prices for readers (as reported in Trachtenberg 2014). Hachette concluded a similar multiyear agreement with Amazon in November 2014 effective for sales commencing in 2015 (as reported in Trachtenberg and Bensinger 2014). The Amazon–Hachette negotiations were particularly lengthy and acrimonious. At one point, Amazon gave a glimpse of its monopsony power when it stopped allowing “pre-ordering” of new p-books from Hachette, which meant that customers buying those books often experienced a delay of several weeks before the book arrived.

Although the details of these contracts between Amazon and the publishers are confidential, they appear to reflect a new willingness on the part of Amazon to accept higher retail e-book prices. De los Santos and Wildenbeest (2014) observe a trend toward higher e-book prices at Barnes & Noble and Amazon, especially for newer and more popular titles, following the expiration of the two-year window during which the publisher settlement agreements prohibited the publishers from interfering with retail discounting of their e-books.

The observed trend toward higher e-book prices suggests that publishers successfully nudged Amazon to raise the retail prices of its e-books. A question that is relevant to the impact of the conduct by Apple and the five defendant publishers is whether the adoption of some form of agency contracts would have occurred even if the publishers had not agreed to coordinate their negotiations

⁶ The July 10, 2013, ruling is available at <http://www.justice.gov/atr/cases/f299200/299275.pdf>. Judge Cote issued a Final Judgment with a renewable term of five years that restricts the ability of Apple and the publishers to enter into contracts that impede Apple's ability to set retail e-book prices or to offer discounts or other promotions. The final judgment also prohibits Apple from enforcing a most-favored-nation provision with any e-book publisher (Cote 2012d).

with Amazon but instead had acted individually. Amazon's insistence on very low retail margins for its e-books may have limits now that it has established its command of the e-retail marketplace and the rate of growth of e-book sales has slowed. The "agency-lite" contracts that Amazon has negotiated with Simon & Schuster and Hachette are likely to become a template for other contracts between publishers and Amazon, and establish a role for agency pricing in the e-book marketplace.

Conclusion

Before the advent of the e-book, the major book publishers and Amazon had found common ground as the Internet opened a new distribution channel for publishers to sell their printed books and for Amazon to establish its presence as the Internet superstore. However, the e-book roiled the traditional publishing industry by expanding the reach of online book retailing and further entrenching Amazon's position in this increasingly important retail channel.

Amazon's aggressive pricing of e-books squeezed margins for other book retailers and alarmed publishers who were concerned about their growing reliance on Amazon to distribute their products. Publishers worried that Amazon's low e-book prices and high share of e-book sales threatened the viability of brick-and-mortar booksellers, including the many independent booksellers who offer advice and encouragement to readers of their books.

E-books likely take sales away from independent booksellers. However, the impact is not particularly large compared to the competition that exists from chain bookstores, mass merchandisers, and online sales of printed books, and the number of independent booksellers has recovered from a low in 2009. Online sales diminish the importance of brick-and-mortar bookstores in the distribution chain, but online channels also open up a variety of other promotional opportunities and ways for publishers to contact potential book-buyers. Furthermore, the empirical evidence is that e-books expand total book sales.

As a powerful buyer, Amazon has the incentive and ability to bargain for low wholesale prices. Conditional on the supply of book titles, lower wholesale prices benefit consumers if they are passed on to lower retail prices. In that event, low wholesale prices are pro-competitive on the intensive margin by bringing retail prices closer to the low marginal cost of licensing and selling an e-book. However, low e-book prices may harm competition on the extensive margin by reducing the supply of book titles if they lower the book revenues available to pay author royalties and cover the cost of promoting new books.

After trying various strategies to limit Amazon's influence as an e-book retailer, several major publishers worked with Apple to impose an agency pricing model for e-books in which the publisher sets the retail price and the e-retailer earns a specified commission. The US Department of Justice and a number of states and territories alleged that this conduct was collusive behavior in violation of the antitrust laws.

The publishers accepted settlement agreements that prohibited them from setting retail e-book prices for a period of about two years, after which they are permitted to negotiate contracts that give the publishers a limited ability to control the retail prices of their e-books.

In keeping with the terms of their settlement agreements, which expire after five years, Hachette and Simon & Schuster negotiated contracts with Amazon that allow the publishers to determine the prices of their e-books under certain conditions—although the specifics of these “agency-lite” contracts are not yet clear. Similar agreements with other publishers are likely to follow, and agency pricing for e-books may yet prevail in some form, as publishers seek out ways to diminish their reliance on Amazon and as both publishers and retailers seek higher profits from the sale of digital books.

Publishers also fear that Amazon’s entry into publishing is a harbinger of a new industry in which Amazon deals directly with authors, and publishers’ traditional roles will be severely compromised. They have reasons to be concerned given the success of self-publishing programs sponsored by Amazon and other e-retailers, such as Apple. The e-book story shows how the traditional players in the book industry are struggling to achieve a new market equilibrium in a time where their industry is facing severe technological disruption and illustrates the hazards they face in attempting to manage the transition to that new equilibrium.

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