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Publishing

Trilce Navarrete

Adoption of new technologies can disrupt market structures, leading to the demise of processes rendered obsolete (such as scribal labour) or eventually creating a new practice (such as the free publication of a crowdsourced encyclopaedia). In the case of the publishing industry, the current changes observed due to the prevalent use of ICT and the Internet are reminiscent of the changes observed throughout the fifteenth through eighteenth centuries, when technological changes led to new market players, new products and services, and new consumption habits. Publishers have benefitted from economies of scale and a significant reduction of costs, though not without a transformation in the sector. Further, while writers and readers appear to welcome digital libraries and printing on demand, believing it represents a liberation of tyrannical intermediaries, we will argue that, as in the past, new intermediaries are emerging with adapted gate-keeper roles.

Brief history of publishing

Book production is millenary. Starting randomly in Ireland during the eighth and ninth centuries, Irish monasteries were centres of manuscript book production followed by Spain in the tenth century, who controlled thirty per cent of the European book market.

While book production and consumption were determined by the capacity of the monasteries, Gutenberg's printing press permitted an expansion of the book market in the Renaissance, with the adoption of movable type printing as key technological innovation in Europe during the fifteenth century. One thing to note is that printers continued to evolve. Most publishers before 1700s did their own printing, and the Dutch Willem Blaeu improved the design of the wooden press in the seventeenth century, introducing larger presses to print maps. The firm had nine presses for type and six more for engravings in Amsterdam, as type required a different press than image printing. In the early 1800s, production was doubled with Stanhope's iron hand-press and quadrupled with Koening's steam press (Briggs and Burke, 2009:19).

Such technological changes required significant economic and human capital, for which clusters of production were not unusual. Venice was the centre for printed books in the fifteenth century, responsible for 27 per cent of the European market with about 500 printers producing over 15,000 titles and 18 million copies. The Counter Reformation posed such restrictions to the multicultural market in Venice that production dispersed across Europe, eventually centralising around Basel and Geneva. Switzerland had the highest per capita of book production in the sixteenth century which was followed by Amsterdam in the seventeenth century, where over 270 booksellers and printers accounted for 8.5 per cent of book production - in addition to printing maps, art prints, and newspapers, an emerging genre. The French Enlightenment is most probably behind fuelling book production and consumption in the late eighteenth century in France. London followed to become the economic centre of book production in the eighteenth century, responsible for 23 percent of the European book market, though Sweden implemented a strong literacy policy leading to the "explosion of the printing industry" (Buringh and van Zanden, 2009:423; Briggs and Burke, 2009).

The growth in the sector required a restructuring of the organisation. While *stationarii* were associated with printing, publishing, selling and lending of books in the late Medieval ages (Mackenzie Owen, 2007), the emergence of publishing houses enabled the separation of printing and selling. Publishers, in addition, hired authors to provide with marketable content, as is the case of David Hume being paid for his historic writing and not for his philosophical work, or Caspar Barlaeus who was hired as the first academic editor by the Elzevir family for their publishing house. Since early on, a 'winner takes all' was observed where a few popular authors or editions would cross-subsidise lesser known publications.

Images were as important as text, albeit posing additional technical challenges. Music publishing serves to illustrate this. In the fifteenth century, printed music was often limited to red staff lines on the page in most liturgical books, which were later filled by hand with the desired notes. The reason being that even though liturgical texts were fixed and thus shared across monasteries, musical traditions differed locally. Printers therefore omitted musical details in order to avoid limiting their market sales. Printing only the lines was also cheaper: printing a note superimposing a staff line required two impressions, doubling the costs. One early example from 1480 (*Brevis grammatica*) in fact shows the opposite: only the notes and the clef were printed, so that the lines could be drawn by hand. Ottaviano Petrucci, a Venetian publisher, developed a three-stage printing process (first the notes, then the staves, and third the text, the initial, signatures, and page numbers) that stimulated the market for polyphonic music. He obtained an exclusive right to print and sell music for voices, organ, and lute across the Venetian Republic in 1498. Half a century later, Pierre Attaingnant, a Parisian printer, developed music printing from type in one impression. Both his printing technique as well as his musical repertoire were widely copied. Printing of music flourished with the

publications by Tylman Susato in Antwerp, including 60 musical books between 1543 and 1561, later joined by Christoffel Plantijn. It appears that musical printing using movable type followed the same principles of text, as documented by the Plantin-Moretus printer in Antwerp (currently a museum and listed as World Heritage in 2005). As printers and musical notation developed in the later centuries, so did the complexity of preparing plates for printing with the usual breaking up of the individual elements for future reuse. This was a labour-intensive process (Boorman et al., 2001). An alternative was image printing.

Musical theory books from the Middle Ages and early Renaissance included diagrams linking music to arithmetical concepts, for which the use of woodblocks was most suitable. A woodcarver was hired to produce the images for the book run, which required quite the skill and often simplified the representation of a white note on a staff line. It has been estimated that over 300 works and 600 editions on music theory were printed by 225 printers in 75 towns in Europe in the sixteenth century, some of them running 40 editions in 63 years. An early print on a metal plate survives from 1446. Music publishing using etching (where acid eats into a copper plate) was less common and lasted until the eighteenth century, while engraving (hand carved) became extensively used for printing music well into the mid-1990s. Eventually, specialist engraving houses developed signature artistry on optimum legibility and layout design, such as the printing firms by Carl Gottlieb Röder from Leipzig illustrating musical publications from London, St. Petersburg and Latin American publishers. His firm also used printed lithographs, increasing production from 30 to 300 sheets per minute (Boorman et al., 2001).

Music publishing is not always dated, but estimates identify a significant growth of output after the eighteenth century due to the rise of engraved music and the

proliferation of song sheets. Considering a yearly music publishing of 80 titles in 1550, Boorman et al. (2001) estimate that music publication grew to 150 titles in 1700, 300 titles by 1750, 1,000 titles by 1800, 10,000 titles by 1850, reaching a peak of 50,000 titles by 1910. Other technologies to print music, as other iconographic material, include lithography (similar to etching but in stone); photographic transfer; stencils and dry transfer; and photography, while music printing using type eventually led to the invention of the musical typewriter (Boorman et al., 2001). Commercial sound recordings and the increasing prominence of digital recordings are behind the decrease in paper music publishing.

Instead, the end of the twentieth century has seen an explosion of music publishing using music engraving software such as Sibelius and Finale (proprietary), MuseScore and LilyPond (open source), and the open initiatives MusicXML and MEI (Music Encoding Initiative). Music representation can also be audio-based, which have seen a steady development in encoding formats such as MP3 (MPEG-1 or MPEG-2 Audio Layer III) (Orio, 2006). Not surprisingly, music publishing is increasingly linked to multimedia display and data processing, as well as to distribution platforms and online storage.

This brief history of printing highlights an important shift from the manual production of manuscripts used for knowledge transfer within monastic libraries, to the growth of a diverse and profitable mechanical (music) publishing industry, to more recently an exploration of the possibilities of production, distribution and consumption of content using digital technology. The following sections discuss the publishing industry in general, from the production and consumption perspectives.

Production

Publishing has been associated with books, generally divided in trade and educational or professional books, and a variety of other print material such as journals, newspapers, magazines, and educational publications. More recently, social media has given rise to new forms of publication such as websites and blogs. In fact, a significant share of the revenue results from digital publication, including e-books, tablet applications, or special social media content (Wikström and Johansson, 2016). Book production broadly includes content creation and acquisition; content selection and processing; transformation of content; distribution; and marketing and promotion (Picard, 2011). The traditional quality signals of prizes, author reputation, book reviews, and word-of-mouth, all increasingly also having a digital variant, make the sector relatively transparent (Canoy et al., 2006).

Book production across the world continues to increase, with differences per country related to economic prosperity, the education level of the population, or population density. Canoy et al. (2006) analyse the annual book title production by country between 1975 and 1999 based on production by GDP per capita and find that greater incomes lead to greater sales, however the positive relation found in lower per-capita income countries is not as strong in higher per-capita income countries (the US has a similar production as Greece). Countries with lower years of schooling in the population have again a clearly lower book production, while greater education does not show a strong correlation to book production (Australia, Canada, France, Japan, and the US have a rather low book production), and population density does not show any relation to size of book output.

The main characteristics of the publishing industry include having an uncertain demand, half of which performs spontaneous purchases, high production costs and

small marginal costs, with a short period of profitability, enjoying infinite variety of titles (or horizontal differentiation) and range of quality (or vertical differentiation) (Canoy et al., 2006). The free entry to the sector has led to a large number of competitors in each part of the production chain, who seek a profit in the continuous growth of production. Nevertheless, the sector is dominated by a few large publishing houses. The mergers in the publishing industry in the last decade can be largely attributed to new digital production processes with business models that strongly rely on advertisement fees, are increasingly personalised, and that provide content at distribution cost (close to zero) (Wikström and Johansson, 2016).

Similar to music, film, and game publishing, over 35 per cent of book publishing revenue results from older publications, while 70 per cent of titles will not earn the author's fee. For a general trade book, costs of printing can be divided into manufacturing (10 per cent), distribution (8 per cent), marketing (7.5 per cent), publisher's overhead (8 per cent), author's share (10 per cent), retail store discount (47 per cent), cost of returns 3.5 per cent) and publisher's profit (6 per cent) (Vogel, 2007).

Authors' earnings vary by genre, where television receives by far the higher earnings, followed by theatre or film, the Internet, and academic or educational content, while translations receive the lowest earnings (Towse, 2019). Authors wanting to keep a larger share of the sale of a book will consider self-publishing. Self-publishing has further lowered the entry barriers to new writers, promising greater diversity in content and in quality as well as the reach to wider and richer markets (Wikström and Johansson, 2016). Self-published independent authors capture between 30 and 40 per cent of the e-book market (Towse, 2019). It has been estimated that 235,000 electronic and printed books were self-published in the US in 2011, with the example of the very successful *Fifty Shades of Grey* first published in 2010, released as e-book in 2011, and

sold over 65 million times by 2012 (Wikström and Johansson, 2016). However, while authors and publishers may avoid the multinational publishing houses, they may still rely on multinational online distribution platforms, such as Amazon or Apple Books, in order to reach consumers.

Consumers, in turn, may be 'locked-in' to a platform's hardware, such as Amazon's Kindle, and a collection of books previously purchased. Since the appearance of the first e-readers in the mid 2000s, technological competition has led to a series of innovations to improve the quality of display, battery life, and general look and feel of the devices. However, smart phone technology has also evolved to compete in the market for portable screen devices, resulting in the convergence of the various e-readers on the market (Benghozi and Salvador, 2015). The complexity of the market is evidenced by the role of technological suppliers, digital platforms, and book publishers involved in the technological innovations of e-readers.

Elite writers in the sixteenth and seventeenth century chose to distribute their writings through manuscript copies, due to the prejudice that mechanical printing led to the popularisation of books as well as to avoid religious, moral and political censorship (Briggs and Burke, 2009). Similarly, writers in the twenty-first century may choose to distribute their work through established publishing houses in order to gain reputation as well as to reduce risk of illegal copying.

Illegal copying is not new to digital technology. Copyright was first proposed to protect writers in eighteenth-century London, but the ease with which digital copies are made and distributed online has led to new concerns. Evidence shows that consumer selections of titles accessed through shadow libraries respond to poor market distribution. Countries with higher use of peer-produced online libraries have lower diversity of content in their local market (Bodo and Lakatos, 2012; Bodo, 2018). Online

libraries (and online archives) evidence the challenges of translating a legal framework made for paper publication to the digital realm, where 'publication' may be linked to other online functions such as searching, indexing, and hosting.

Educational and professional publishing is a specific market, as consumption is predictable based on the size of the school population, and is often repackaged in digital form available as a bundle of license (Vogel, 2007). In the Netherlands, all 13 universities, the national library and the Dutch Research Council have signed the National Plan for Open Science aiming at providing full access to research results funded publicly by 2020. Agreements have been reached with Springer, Sage, Elsevier, Wiley, American Chemical Society, Taylor & Francis, and Oxford University Press (VSNU, 2018). Particularly in certain disciplines, such as information science, most journals are only published digitally.

The European Book Publishing Statistics report a slight decrease of revenue from academic book sales, from 19.5 per cent in 2013 to 18.5 per cent in 2017. Revenue from sale of educational books however increased from 18.8 per cent in 2013 to 21.2 per cent in 2016. Still, nearly half of the revenue from sales originates from consumer trade books accounting for over 10 million euro (FEP, 2018). Eurostat reported an increase in the value added from book publishing from 9.837 in 2011 to 9.690 in 2013 (Eurostat, 2016).

As Canoy et al. (2006) note, "the book market seems to flourish in one dimension (production) but not in the other (reading)" (p.734).

Consumption

Reading enables lifelong learning and increases chances of an active participation in social and economic life. Reading is associated with educational attainment; particularly higher educational attainment has a noticeable relation to reading habits. Luxembourg has the lowest disparity between educational attainment groups (Eurostat, 2016). UNESCO Institute for Statistics reported 86 percent of the adult (aged 15 years and older) global population have basic literacy skills, higher for the youth aged 15 through 24 (91.4 per cent) and lower for women (83 per cent) (UNESCO, 2017).

Literacy has recently been redefined by UNESCO as the "ability to identify, understand, interpret, create, communicate and compute, using printed and written materials associated with varying contexts" (http://uis.unesco.org/en/blog/meet-sdg-4-data-measuring-youth-and-adult-literacy-and-numeracy). Increasingly, literacy skills have to be complemented by ICT skills to enable consumers to function as digital literates, for instance, to use software programs, to copy, paste, move, or download files, and eventually to write computer programs. Currently, UNESCO's Sustainable Development Goal 4 aims at ensuring literacy and numeracy by all the youth and by a substantial proportion of adults, both men and women, by 2030.

In spite of the goals, statistics report a declining trend on reading. Finland, for instance, reported a decrease in the population who read at least one book in the past 12 months from 79.3 per cent in 2007 to 72.7 per cent in 2011. Similarly, Austria, Bulgaria, and Spain reported a decrease from 74.8 to 73 per cent, 52.1 to 48.2 percent, and 60.8 to 58 per cent in the same period, respectively. Only Germany reported an increase from 72.8 to 75.3 per cent (Eurostat, 2016). The apparent decrease in reading may be linked to the increased use of the Internet to access information, replacing the use of books and encyclopaedias as reference sources, as well as to alternative sources of literature beyond the classical paper book format (including e-books). Population surveys of time

spent in cultural activities are yet to adjust to the changing cultural consumption patterns.

In the Netherlands, the number of books bought has decreased from 47.6 million in 2005 to 39 million in 2015 (including e-books from 2010), while the sale points have increased from 1,462 to 1,525 in the same period. Similarly, the books lent from libraries decreased by 41 percent from 132.5 million books lent in 2005 to 79.7 in 2015. A popular library app (VakantieBieb) has stimulated e-book loans, which have doubled reaching 4.7 million loans in 2016 (https://www.boekman.nl/cultuurindex/sectoren/letteren/).

Book consumption is price-elastic, except in the case of bestsellers, because of the high variety of books available for substitution. Book consumption is also income-elastic, so that purchases grow as reflection of greater income. The average price of an e-book in the Netherlands was €8.95 in 2018, a decrease by 68 per cent compared to the price of a printed book (or p-book), priced at €13.10 in 2018 (https://www.leesmonitor.nu/nl/boekenvak#prijs-e-boek-daalt). However, not all books bought or lent are read. Dutch consumers reported reading 72% of bought books and 64% of lent books, while the Kobo online bookshop reported 60% of e-books bought are never opened (https://www.leesmonitor.nu/nl/boekenvak#prijs-e-boek-daalt).

Governments can devise a fixed book price agreement, where the publisher 'fixes' a retail book price "intended to raise or maintain prices above the competitive level in order to provide an incentive to publishers and bookshops to increase the range of titles they supply. It emphasises non-price (access, greater choice) over price competition" (Towse, 2019: 611-2). By setting a retail price, the publisher has the incentive to produce a greater number of titles, where the more popular serve to cross-subsidise the

less popular, increasing the overall diversity of the market offerings. Bookshops, in turn, benefit from a certain equity of distribution by providing equal price to consumers independently of the size of the bookshop, increasing diversity of firms in the market. In spite of the arguments, empirical evidence has failed to link a fixed book price policy to a greater diversity of the market. This may be, as argued earlier on, due to the relative transparency of the market. Argentina, Austria, Germany, Greece, Israel, Italy, Japan, Lebanon, Mexico, the Netherlands, Norway, Portugal, Slovenia, South Korea and Spain have a fixed book price agreement, while Finland, Sweden, Ireland and the UK have freed book prices. Online consumers may notice the same book to be priced differently on amazon.nl, for instance, and amazon.uk.

The global market has further highlighted discrepancies in the Value Added Tax (VAT) across countries, influencing online consumer choice. Reduction of the VAT for cultural services, for example, is one indirect form of government subsidy to stimulate consumption. The amount of the subsidy depends on the consumer: the greater the purchase, the greater the subsidy. As such, a reduced VAT rate represents a decrease in government revenue that could otherwise be allocated as direct subsidy to a desired cultural good, such as educational materials because all books receive the same VAT rate; a cultural service, such as a public or public provider; or consumer, such as youth or women readers. Evidence from a cross-country comparison shows that publishers do not transfer the reduced cost to the consumer in the form of a reduced price. However, retail price for books does influence consumption (Borowiecki and Navarrete, 2018).

Governments stimulate reading and access to books through the provision of libraries. According to a report by the Online Computer Library Centre (OCLC, 2003), there are about 1 million libraries worldwide holding over 16 billion books (4.5 in public libraries, 3.7 in school libraries, 3.5 in academic libraries, 3.2 in special libraries, and

0.9 in national libraries). According to Salaün (2013), libraries have two important contributions. First, the common collections benefit from network effects in that the larger the pool of contributors, the larger the benefit to the contributors' consumers. It is more efficient to go to one large repository to find 'all the content of the world' than to have to travel to various libraries to find the desired book. Libraries have pooled resources to share the costs of collecting, organising, cataloguing, indexing, and cross-referencing collections, facilitating the inter-library loan system. In that way, online services (such as Google) share the functionalities of organising and providing access to vast quantities of information content to consumers that libraries have performed.

A second contribution of libraries, key in characterising them from other Internet information services, is the provision of a sustainable repository. Libraries collect, organise and make accessible their holdings, but also protect their collections for future generations to also have access to the past investment.

Closing remarks

The arrival of Gutenberg's printing press led to a decrease in book price and explosion in the book market, which continues to expand book title output through the digital publishing variant. Contemporary readers can sympathize with a Venetian writer from 1550 in his frustration that there were "so many books that we do not even have time to read the titles" (Briggs and Burke, 2009:15). The increased availability of published texts resulted in an increase in population literacy as indirect and long-term effect (Buringh and van Zanden, 2009). Digital technology and the use of the Internet to distribute content may further eliminate illiteracy, though not necessarily in book form and perhaps not through text form. Video is positioning itself as a preferred online

format for knowledge transfer while video games and virtual reality are increasingly used as educational aids. Digital literacy skills are imminent.

The publishing industry is part of the creative industries, which produce private goods (a book for purchase) and public goods (non-rival and non-excludable information which can be transferred). Publishing is also an important contributor to GDP and books have proven to be profitable luxury goods. Books are also carriers of core creative art forms, namely literature and music. The role of governments hence lies in balancing intervention to correct eventual market failures related to the sub-optimal production (or consumption) of cultural goods while stimulating literacy in the population, within a healthy and profitable market.

See also:

Cost of production; Demand; Music publishing; Platforms.

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Further reading:

For a thorough discussion on the publishing industry see Canoy et al. (2006).