

## Newspapers and Magazines

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### Abstract

We review the Economics literature on Newspapers and Magazines. Our emphasis is on the newspaper industry, especially in the United States, given that this has been the focus of existing research. We first discuss the structure of print media markets, describing the rise in the number of daily newspapers during the early 20<sup>th</sup> century and then the steady decline since the 1940s. We discuss print media in the context of two-sided markets, noting that empirical papers on the newspaper industry were some of the earliest studies to use the techniques of two-sided market estimation. We then review the research on advertising in print media, particularly the question of whether readers value print advertising as a good or a bad. We summarize the research on antitrust-related issues in newspaper markets, including mergers, Joint Operating Agreements and vertical price restrictions. We then review recent research on how print media have been affected by the growth of the Internet. Finally, we offer suggestions for future research and provide thoughts on the future of this industry.

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## 1. Introduction

This chapter reviews the Economics literature on newspapers and magazines, possibly the two oldest and most influential media in history. We attempt to summarize a vast literature, both theoretical and empirical, on print media. This is especially challenging since this industry has undergone enormous changes since its inception, continues to evolve at a rapid speed today, and also varies in form and structure across cities and countries. Our emphasis will be on the newspaper industry, given the preponderance of research in this area. Out of necessity, our review of empirical research will also focus mostly on the newspaper industry in the United States, again reflecting the great majority of empirical research thus far.

Print media, especially newspapers, are vital in political and economic discourse. Society tends to attach particular importance to the newspaper industry as it has traditionally been an important source of information that affects civic participation, but has also often been monopolized in small local markets.<sup>1</sup> This chapter will examine the economic forces surrounding these issues, as well as summarize research on the history of print media, on advertising in these media, and on the relationship between print media and the Internet.

The importance of newspapers to the democratic process, and in informing citizens, has long been recognized. In the early years of the United States, its founders viewed newspapers as critical for the development of the new country. They provided the newspapers of the day with subsidized postal rates and helped create a reliable distribution network (Federal

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<sup>1</sup> This issue is discussed further in X-S, X-DF, X-P, X-EP, X-PS and X-GSS).

Communications Commission, 2011). Newspapers have been considered so integral to civic participation that policymakers are not content with relying on market provision of this good, and have often exempted newspapers from regulations that would normally apply in other industries. Perhaps the most famous example of this is the US Newspaper Preservation Act of 1970, which carved out an exemption for newspapers from the usual provisions of antitrust laws. Under the Act, newspapers that would normally compete in the same market were allowed to form Joint Operating Agreements (JOAs), which allowed them to combine their business operations – in particular, the advertising side of the business – while maintaining separate news divisions. The stated goal of the legislation was to allow certain markets to support multiple newspapers, where otherwise circulation declines would have led to a monopoly.

At the same time, newspapers have usually been given free rein with regard to their content, in contrast to broadcast media such as radio. As discussed in (X-Sweeting) the fact that broadcast media use publicly owned spectrum has allowed a certain level of content regulation that has never been the case in the newspaper industry. Indeed, Gentzkow et al. (2006), discussed in more detail in Section 2, point out that in the past US newspapers never even made an attempt to claim an independent position, instead advertising their allegiance to certain political parties and publishing overtly partisan coverage of events.

Another major difference between the newspaper industry and broadcast media lies in market structure. There are often a large number of radio and television stations within a metropolitan area, and television, in particular, offers most consumers a wide range of local as well as national programming. By contrast, most newspaper consumption, in North America at least, tends to be

strongly local. Moreover, the importance of economies of scale in this industry leads most cities to be local monopolies or duopolies at best, with recent years seeing a sharp decline in competition. Understanding the economic causes and consequences of local concentration is therefore extremely important.

Undoubtedly, though, the most important issue affecting the industry these days is the dramatic decline in both circulation and advertising revenues, particularly in newspapers, and the challenges posed by online media. As we will see later in this chapter, real advertising revenues in US newspapers have dropped by almost 70% since 2000, driven by a combination of declining circulation, cheaper and more effective online advertising options, and the severe effects of the 2008 financial crisis and its aftermath. Whether print newspapers will survive in their current form is an open question. Some industry observers believe that over the long-term newspapers will simply change their form to purely digital versions. Even if so, it remains to be seen whether the electronic press can take the place of traditional daily newspapers with regard to providing factual, informative coverage of news events.

For magazines, the situation is not quite the same. While the two industries have much in common, the greatest difference lies in market structure. Newspapers, especially in North America, have traditionally operated in local markets, which is one reason why the Internet has disrupted this business so much, by suddenly introducing competition from around the country and the world. Magazines, by contrast, have always operated on a national scale and have therefore not been affected as severely by digital media. Moreover, magazines have always

needed to find ways to differentiate themselves through their choice of subject matter, in a way that newspapers have often not needed.

These differences perhaps explain the divergent fortunes of the newspaper and magazine industries in recent years. While newspapers have experienced dramatic declines, many countries have experienced a growth in the number of magazines in recent years. Data in the U.S. suggests that magazine circulation and advertising revenues have remained relatively strong over the past two decades, as we will discuss in more detail in Section 2. Moreover, while a number of magazine titles have closed, there has also been entry in recent years. As with newspapers, however, the advent of the Internet may radically affect the physical form that magazines take, and it remains to be seen whether digital advertising revenues can match those of print editions.

The rest of this chapter organizes the economic literature on print media according to what we believe to be the most natural division of topics. In Section 2 we provide an overview of the print media industry, with an emphasis on the history of the newspaper industry, particularly that of the United States. We present some stylized facts on the industry and also discuss data sources for empirical researchers.

In Section 3 we discuss market structure in print media, in particular--the number of firms that the industry can support and the importance of economies of scale in this industry. We discuss in detail the structure of newspaper markets in the United States, and examine the reasons that the number of daily newspapers has fluctuated considerably over time, rising rapidly from the mid-1800s until about 1920, and then declining steadily since then.

In Section 4, we discuss the economics of print media, especially in the context of the recent and rapidly growing literature on two-sided markets. In fact, economists working on the print media industry were confronted with the challenges of two-sided markets — such as the estimation of multiple, interrelated demand models and cross-price elasticities — well before the development of the current literature on two-sided markets and its associated tools. We therefore first discuss an older literature on demand estimation in newspapers and magazines, before surveying the more recent research in this area.

In Section 5, we review the literature on advertising in newspapers and magazines. Our focus in this section is on papers that examine the intermediary role of print media in transmitting advertising messages to readers, as opposed to a more general analysis of the literature on advertising, which is enormous. In particular, we review the research on whether readers of print media value advertising positively or negatively, which has important consequences for the pricing model of newspapers and magazines. We also review research on targeted advertising in print media.

In Section 6, we review the literature on market power and antitrust in newspaper and magazine markets, with a particular emphasis on the literature on mergers. We also discuss Joint Operating Agreements, vertical price restrictions and restrictions on cross-ownership of newspapers and other media.

In Section 7, we turn to the effects of the Internet on traditional print media, on both the subscription and advertising sides. We review the literature on whether a publication's print and electronic editions are substitutes or complements. We then discuss the research on how online competition affects print newspapers and magazines.

Finally, in Section 8 we offer our concluding thoughts on the future of print media and the challenges that this industry faces.

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## **2. An Overview of the Print Media Industry**

In this section we present some stylized facts on print media. We begin with a history of these media, emphasizing the newspaper industry in the United States. We then present statistics and charts that summarize the current state of these industries. We also provide references to standard data sources that researchers have relied on in the past.

### **2.1 A Short History of Newspapers**

As we briefly mentioned in Section 1, the founders of the new United States provided considerable support for the establishment of a reliable distribution network in the early 19<sup>th</sup> century. At the time, both newsgathering and newspaper delivery were dependent on horses and, to a certain extent, boats. This severely affected the time it took to report on events: up to 28% of news stories were a month or more out of date (Blondheim, 1994). This situation would have

also severely limited the geographic reach of newspapers, but for the fact that they were granted subsidized postal rates, which helped newspapers in the early 19<sup>th</sup> century to expand beyond extremely local markets. In 1794, Congress set mailing rates for newspapers and magazines at less than one-sixth of the cost of letters, and later many periodicals enjoyed free postal delivery.<sup>2</sup>

New technologies in the 1830s reduced the cost of both ink and paper, as well as improved the quality of printing presses (Mott, 1950). With lower costs, newspapers could afford to sharply reduce prices, which in turn led to large jumps in circulation. A higher number of readers led to interesting changes in the political stances of newspapers, as we discuss in Section 2.2, and was a factor in changing the focus of newspapers to cover more local news.

The advent of the telegraph in the 1840s sharply reduced the time to report stories, which also made newspapers far more valuable and appealing to a broader audience. In the 1870s and beyond, advertising became more important in newspaper markets. Large national brands were emerging, led by the shrinking of distances brought about by the railroads. At the same time, printing presses were becoming far more sophisticated but also more expensive, thereby raising barriers to entry in the industry (Hamilton, 2004).

Gentzkow et al. (2006) provide an informative discussion of how technological changes in the late 18<sup>th</sup> and early 19<sup>th</sup> centuries allowed newspapers to greatly increase their scale. They document how the introduction of a new process for making paper from pulp in 1867 led to a sharp drop in the price of newsprint. This made it feasible for newspapers to invest in other

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<sup>2</sup> <https://about.usps.com/who-we-are/postal-history/periodicals-postage-history.pdf>



production improvements such as high-speed printing technology. These investments, coupled with dramatic improvements in communication brought on by the telegraph and the transatlantic cable, allowed newspapers to substantially increase their scale of production. This also led a drop in newspaper prices and, as a result, US newspaper subscriptions increased twelve-fold between 1870 and 1920. By the end of this period, the average urban adult was purchasing more than one newspaper per day and was very likely reading even more. These technological improvements also led to a large increase in the number of newspapers, particularly independent ones.

By the early 20<sup>th</sup> century, newspapers had been growing without interruption in terms of both circulation and influence. This would start to change with the introduction of rival news media. The first challenge was posed by radio in the 1930s. Newspapers' ad revenue dropped by 28% between 1929 and 1941 (FCC, 2011). Radio stations were accused of copying newspaper stories, a charge that is being repeated with regard to the Internet today. The steady growth in newspaper circulation began to slow during this period, although it would take the introduction of another news medium for newspaper circulation to actually start to decline.

The growth of television in the 1950s and beyond marked the start of a long-term decline in newspapers in North America. Gentzkow (2006) shows that television expanded rapidly across the country: typically it took less than five years after the introduction of television in a given market for penetration to reach 70%. Gentzkow shows that the growth of television is correlated with a decline in newspaper circulation. Moreover, these forces end up reducing voter turnout, a topic to which we return in Section 2.3.

Genesove (1999) discusses in detail the adoption of two new technologies in the US newspaper industry in the 1960s: photocomposition and offset printing. Together, these technologies reduced labor requirements, increased the print quality of the newspaper, and also lowered the marginal costs of production. These came at the expense of considerable one-time investment costs. Thus, adoption of the new technologies was a strategic decision that depended not just on the newspaper's own scale, but also on the existing market structure. Genesove shows that the pattern of adoption of offset printing, in particular, was partially consistent with an economic model of preemption. Among the set of monopoly newspapers, those of smaller scale were quicker to adopt the technology. However, within duopoly markets, the newspaper with the smaller market share was, on average, four years slower to adopt the offset press. Genesove stresses that this was a period when a number of duopoly markets saw, or expected to see, exit by one of the competitors, which complicated the adoption decision.

We postpone a detailed examination of the decline of newspapers to Section 3. Briefly, though, it is now clear that the deleterious effects of radio and television on newspaper circulation continued throughout the 20<sup>th</sup> century, in conjunction with other factors. Newspapers have been steadily losing readers and revenue; when measured in real terms and on a per-capita basis, these losses have been staggering, as we discuss in detail in Section 2.4. The challenges posed by the Internet have been immense, but the Internet also provides a glimmer of hope for newspapers and magazines to possibly continue, and perhaps even thrive, in a new form, a topic that we return to in Sections 7 and 8.

## 2.2 Partisanship in Print Media

Television and radio news shows in contemporary America are often accused of political bias. However, such accusations are leveled far less often against print media, with the exception of influential national newspapers. This would seem strange by the standards of the 19<sup>th</sup> century, when most newspapers were overtly partisan, in many cases declaring explicit affiliations with one of the two major political parties. This led, in many cases, to newspapers receiving funding not only from the parties, but also from the government. Baldasty (1992) describes how printing contracts for the executive branch, and for each chamber of Congress, went to three separate Washington, DC newspapers in the 1820s, with opposing political views.

Academic research on newspapers has covered the industry as early as the 19<sup>th</sup> century, and the natural topic to examine from this time period was partisanship. Gentzkow et al. (2006) point out that, unlike today, there was no expectation of unbiased news coverage during most of the 19<sup>th</sup> century. As late as 1870, 89% of daily newspapers in urban areas were affiliated with a political party. This situation changed dramatically over the next 50 years, with a sharp rise in the proportion of newspapers that were independent, along with a focus on hard news instead of on political scandals and partisan reporting. Gentzkow et al. (2006) document the rise of the informative press by showing that the fraction of newspapers that claimed to be independent rose from 11% to 62% between 1870 and 1920. This was due both to the switching of previously partisan papers to becoming non-partisan, as well as the entry of independent papers. They use textual analysis of newspaper articles over this period to show that there was a substantial drop in partisan and biased language over this period. They also analyze newspaper coverage of two major scandals: the Credit Mobilier scandal of the 1870s and the Teapot Dome scandal of the

1920s. They show that the language used to cover these events changed significantly over this 50-year period, with even partisan newspapers reducing their use of inflammatory and accusatory language. Moreover, this period also saw the growth of independent newspapers, which covered stories that were suppressed by the partisan publications.

The reason for the growing independence of newspapers in this period was at least partly due to improvements in technology, as described in Section 2.1, which increased the ability of newspapers to reach a much wider audience than before. Appealing to larger audiences required newspapers to take less partisan positions. Newspapers therefore focused more on hard news, often local in scope, instead of reporting on Washington scandals and partisan positions (see Starr, 2004 and Hamilton, 2004).

Gentzkow et al. (2006) also show that the increase in the size of the newspaper market between 1870 and 1920 was accompanied by an increase in the number of newspapers. This increase in competition led newspapers to provide more information relative to spin. Moreover, newspapers with higher circulation were more likely to be informative, and to provide factual, important stories in a timely manner.

On the same topic, Petrova (2011) uses data on American newspapers from 1880 to 1885 to show that the growth of an advertising market promotes media independence from political influence groups. Specifically, she shows that in areas with faster-growing advertising markets, newspapers were more likely to be independent. As was the case in Gentzkow et al. (2006),

Petrova shows that this was due both to existing partisan newspapers becoming independent, as well as the entry of new, independent papers.

### 2.3 Newspapers and the Electoral Process

Perhaps the most important effect of newspapers on society is their influence over the electoral process. Recent empirical research has studied the relationship between newspapers and the electoral process, and we attempt to summarize some of this research here. Note that this chapter will not deal specifically with issues concerning media bias. We refer readers to (X-GSS and X-PS) for detailed discussions of these issues.

Gentzkow et al. (2011) examine how the entry and exit of newspapers affects electoral politics. They show that the presence of an additional newspaper increases voter turnout in both presidential and congressional elections by about 0.3 percentage points. This effect is mostly driven by the entry of the first newspaper in a market, which increases turnout by one percentage point; subsequent increases in competition have a much smaller effect on political participation. This implies that, for the average adult, reading at least one paper increases the probability of voting by four percentage points.

Chiang and Knight (2011) estimate the extent to which newspaper endorsements affect voting intentions in the US using survey data at the time of the 2000 and 2004 elections. They point out that many voters view the media as biased, and therefore it is not clear that endorsements should sway voters' minds, either because voters choose to subscribe to newspapers which endorse their

own political opinions, or because they discount media opinions that are at odds with their own. Therefore, in their model, Chiang and Knight allow readers to account for the credibility of endorsements. Nevertheless, they find that newspaper endorsements do increase the likelihood of voting for the endorsed candidate, but that this effect depends on the credibility of the endorsement. Thus, an endorsement of a Democratic candidate from a left-leaning newspaper carries less influence than one by a centrist or right-leaning newspaper.

George and Waldfogel (2006) provide evidence that the national expansion of the New York Times between 1996 and 2000 had a significant effect on local newspapers. In particular, markets where the *Times* expanded its home delivery service saw circulation declines in local newspapers among the type of readers targeted by the *Times*, which the authors proxy by the share of the population that is college educated. As a result, there is some evidence that local newspapers then repositioned their products, by providing more local and less national coverage. This in turn may have led consumers of the type not targeted by the *Times* to increase their consumption of the local paper. Concretely, the results indicate that areas with the highest penetration of the *Times*, local newspaper circulation was 16 percent lower among highly educated readers and 7 percent higher among less educated readers than in markets with the lowest penetration of the *Times*. They also speculate on the possible effects on readers who do switch to consuming the *Times*. Presumably these readers are now exposed to less local news, which may reduce their engagement with local affairs including local political participation.

The importance of the newspaper industry that these studies have highlighted perhaps gives us some cause for concern. Newspapers have been instrumental in stimulating political discourse,

and Gentzkow et al. (2006) show that an increase in the number and circulation of newspapers in the early 20<sup>th</sup> century was accompanied by an increase in their informative content. But newspapers in their traditional form have been declining at a rapid rate in a number of countries in recent decades. It is by no means clear that electronic media are ready to take the place of the world's oldest and most powerful medium of disseminating information.

#### 2.4 Stylized Facts on Newspapers and Magazines

Table 1 plots the number of daily newspapers in the United States since 1940, using data from the Newspaper Association of America. Two trends are apparent: first, that evening newspapers, which used to be ubiquitous in mid-sized American cities, have rapidly declined since the 1980s. Some of these evening papers converted to morning editions, while others have simply shut down. Second, the number of morning papers has risen, but not by enough to compensate for the decline of evening papers. As a result, the total number of US daily newspapers has declined from around 1750 in 1980 to about 1350 today.

[Figure 1 here]

The trends in Figure 1, however, understate the difficulties faced by the newspaper industry because they do not account for the rapid increase in America's population. On a *per capita* basis, newspapers have faced sharper declines in the past few decades, and this has accelerated in recent years. Figure 2 presents the number of newspapers, as well as average national newspaper

circulation, normalized by population. By both measures, newspapers have been declining steadily since the 1940s.

[Figure 2 here]

In Figure 3 we present data on newspaper revenues, expressed in constant 2012 dollars. Circulation revenues have been mostly stable over the past few decades, although the decline since 2004 is striking. However, this decline is dwarfed by the enormous loss of advertising revenues, which fell by about 50% in real terms between 2004 and 2012.

[Figure 3 here]

## 2.5 Data Sources

From the point of view of empirical researchers, a major advantage of studying print media is that sales data are generally available on both sides of the market, i.e. with regard to both subscribers and advertisers. This is in contrast to broadcast media, where the free availability of media content often makes it difficult to acquire reliable estimates of audience sizes and characteristics; see (X-Sweeting) for a discussion.

Circulation data are, in fact, carefully followed figures, since they are both the main drivers of advertisers' willingness-to-pay, as well as barometers of the health of the industry. As a result, a



number of organizations audit print media sales, and often provide detailed demographic and geographic micro-data as well.

The Audit Bureau of Circulations (ABC) is probably the best-known source of circulation data for newspapers and magazines. ABC — known as the Alliance for Audited Media in North America — is a federation of member organizations in a number of countries, each of which audits the circulation data of print media in that country. In recent years, many of these member organizations have also taken on the task of verifying the electronic reach of media.

Newspaper data in the United States are also available, at various levels of disaggregation, from the Newspaper Association of America, and Editor & Publisher Magazine. The latter used to publish an annual “International Yearbook” with detailed information on all newspapers in the United States. In recent years this database has moved online and is available by subscription.

Magazine data in the United States are available from a number of sources: The Association of Magazine Media; Standard Rate and Data Service; and the Publishers Information Bureau.

Empirical researchers will note that a number of articles on the magazine industry study the German market; this is probably due to excellent data on magazines available in Germany.

Sources include IVW, which is the German equivalent to the ABC, and an organization called AG.MA which provides truly remarkable publication-level data on the demographic characteristics of readers.

Kantar Media is an important source of data on advertising expenditures. Their AdSpender database provides monthly advertising spending, disaggregated by the type of media, at the brand level for most US metropolitan areas. It is therefore possible to track how various industries allocate their advertising budgets across media, which provides an insight into how effective firms perceive different kinds of advertising to be.

The advent of the Internet is making data more widely available, a trend that economists in all fields are exploiting. With regard to media, the consumption of newspaper and magazine websites can be easily tracked, which generates reliable audience figures as well as, in some cases, detailed data on the characteristics of each user. Well-known organizations such as comScore and Nielsen provide accurate audience figures. Media companies that have instituted pay walls often generate databases of the characteristics and the reading habits of their online audience.

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### **3. Market Structure in Newspapers and Magazines**

We now discuss market structure in print media markets. The majority of this section is devoted to an examination of newspaper markets, due to the interesting economic issues that arise in this industry and the wealth of research in this area. As discussed in Section 1, empirical research on the newspaper industry has focused on the United States, and therefore our emphasis in this section will also be on market structure in the US newspaper industry, although we will point out

important differences between US newspapers and those in other countries.<sup>3</sup> We direct readers to (X-AW) for a more theoretical treatment of issues related to the number of firms that markets can support.

We first briefly discuss magazine markets, since the magazine industry appears so different from newspapers in terms of market structure. This is perhaps surprising given that, in many regards, the two industries are similar. Both the newspaper and magazine industries have subscription prices that are subsidized, or at least supported, by advertising revenues. Moreover, both industries are characterized by high fixed costs and low marginal costs, which are usually favorable conditions for high concentration. But measures of concentration depend, of course, on the definition of the relevant market, an often-fraught issue in the Industrial Organization literature.

Unlike with newspapers, magazines tend not to have local markets defined by cities or metro areas. This is probably a consequence of the fact that magazines' subject matter rarely deals with specific geographic areas, but is more often a general subject, such as news, sports, health, fashion etc. Consequently, advertisers in magazines tend to target readers' demographic characteristics, rather than their geographic location. Therefore, it appears intuitive to define the relevant market for magazines at the national level. This choice is reflected in empirical research in the magazine industry: see, for example, Depken and Wilson (2004) and Oster and Scott

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<sup>3</sup> Research specific to other countries will be reviewed in this chapter as appropriate. Examples of research on newspaper markets in other countries include the following examples: Australia (Merrilees, 1983), Belgium (van Cayseele and Vanormelingen, 2009), Canada (Chandra and Collard-Wexler, 2009), Italy (Argentesi and Filistrucchi, 2007), Japan (Flath, 2012), the Netherlands (Filistrucchi et al, 2012), Sweden (Asplund et al. 2005, 2008), and the UK (Thompson, 1989).

Morton (2005) for the US; Kaiser and Wright (2006) for Germany, and Ferrari and Verboven (2012) for Belgium.

Newspapers, by contrast, vary considerably in their news coverage, their geographic appeal and their target audience. In North America, newspapers have historically been local in nature, confining their coverage to events in the surrounding city or metropolitan area. In these cases, the natural definition of a newspaper market is at the local level as well. In other countries, though, newspapers are often better characterized as competing at the national level. For example, Thompson (1989) estimates a model of circulation and advertising prices using a sample of 34 paid Sunday and morning papers in Britain and Ireland. Noam (2009) points out that countries such as the UK and Japan essentially have national, rather than local newspaper markets.

### 3.1 The Number of Newspapers in a Market

We first pose the question: How many newspapers can a market support? Defining the market as a city or metropolitan area, which is generally appropriate in the case of the US, the answer is usually no more than one. The number of cities in the United States that can support multiple daily newspapers is fast declining, and has done so for years, as we discussed in Section 2. In fact, the decline in the number of multi-newspaper cities was most pronounced during the mid 20<sup>th</sup> century. Rosse (1967) states “In 1923 and 1963, respectively, 38.7 percent and 3.4 percent of U.S. cities with daily newspapers contained more than one. If multiple firms could exist in 1923,

why not today?”<sup>4</sup> On the same topic, Rosse (1980a) states: “[T]here was only one chance in nine that a paper in 1923 did not have face-to-face competition, while the odds were more than two out of three in 1978.” Dertouzos and Trautman (1990) wrote that, at the time, less than 1% of US newspapers faced competition from a newspaper published in the same city.

In fact, numerous authors in the literature have pointed to decreasing competition in newspaper markets, at various points of time and in different settings. As long as 50 years ago, Reddaway (1963), writing about UK newspapers, pointed to “...the historic process whereby the number of towns with more than one evening paper has steadily dwindled – and the number with more than one independent evening newspaper has dwindled even farther”. We will return, in Section 3.2, to the specific question of how large cities must be to sustain multiple newspapers.

We attempted to analyze data on the number of newspaper firms nationally, as well as aggregate readership, across a sample of countries. Although there is excellent data on newspapers in North America, from the Newspaper Associations of the US and Canada, recent and reliable data for other countries is harder to acquire, and the year of the most recent data varies. Moreover, since auditing standards are not necessarily the same across countries, a cross-country comparison should be interpreted with caution. With these caveats in mind, Table 1 below presents data for five countries on the number of newspapers and total circulation, both in levels and adjusted for population.

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<sup>4</sup> Using more recent data from Editor & Publisher (2012), we estimate that only about 2.5% of U.S. cities with daily newspapers in 2012 had more than one, and this number drops further if we do not consider jointly owned newspapers or those operating under Joint Operating Agreements.

The table shows that Japan is the clear leader in terms of total readership per capita. Japan is, in fact, a curious outlier in the newspaper industry. It has the fewest newspapers, adjusted for population, of any developed country. However, at the same time it has the highest readership per capita. This is explained by the extraordinary readership concentration in Japanese newspapers; the two most popular newspapers in Japan – *Yomiuri Shinbun* and *Asahi Shinbun* -- are also the top two newspapers worldwide and each command an audience of over 8 million readers daily.

Table 1: Number of newspapers and Aggregate circulation, by country

	Daily Newspapers (paid)		Daily Circulation (paid)	
	Total	Per million residents	Total (1000s)	Per thousand residents
Britain	94	1.48	10,737	169.4
Canada	95	2.75	4,210	121.7
Germany	350	4.32	18,021	222.2
Japan	105	0.82	47,777	375.3
USA	1427	4.51	43,433	137.1

Source: World Press Trends. Population figures for per capita calculations were obtained from the CIA's World Factbook, 2013. Note that Japan's circulation of "set papers" (morning plus evening editions) is counted only once per day.

In terms of the *number* of newspapers, the United States is the leader among this group of countries, both in absolute terms and adjusted for population. This reflects the distinctively local nature of the US newspaper industry. In fact, the large number of newspapers in the United States has been the case almost since the founding of the country, and was even commented upon by Alexis de Tocqueville back in 1836. In “Democracy in America”, de Tocqueville comments on the “enormous number of American newspapers”. In Vol 1, Part 2, Chapter 3 he states: “[T]he number of periodicals and occasional publications in the United States exceeds all belief” and “in

the United States, scarcely a hamlet lacks its newspaper.” Tocqueville (2004, Vol. 2, part 2, chapter 6) provides an explanation based on the extent of decentralization of administration in the US, and the relative power of local governments, rather than a centralized government, compared to other countries. He states: “This bizarre multiplication of American newspapers has more to do with the extraordinary subdivision of administrative power than the extensive freedom of politics or the absolute independence of the press.”

### 3.2 The Decline of Newspapers

The number of daily newspapers in the US has declined from 1878 in 1940 to 1382 in 2011.<sup>5</sup> As recently as 1980 there were 1745 daily newspapers, implying a decline of over 20% in the last three decades or so. The nature of the industry has changed in other ways too. For most of the 20<sup>th</sup> century, the industry consisted mostly of evening newspapers. In 1980 there were four times as many newspapers published in the evening than in the morning. By the year 2000, however, roughly equal numbers of newspapers were published in the morning as in the evening, and today there are more than twice as many morning papers than evening papers. Morning papers have always had higher circulation on average, but the disparity has grown over time and today the paid daily circulation of morning papers is more than ten times that of evening papers. Reasons may include a rise in the popularity of evening news shows on television, a decline in the number of factory jobs that let out workers in the mid-afternoon, and the migration of readers from central cities to the suburbs where home delivery is harder (Romeo et al., 2003; FCC, 2011).

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<sup>5</sup> Newspaper Association of America and Editor & Publisher International Yearbook.

In the last several years, a number of large US cities that earlier supported two daily newspapers have seen one of them shutdown – either entirely, or become weekly papers or else solely digital editions. These cities include Tucson, Denver, Baltimore, Cincinnati, Seattle and Albuquerque.

A number of smaller US cities that could earlier support a daily newspaper have also lost their local papers in recent years. These include the major university towns of Ann Arbor (MI) and Madison (WI), which would generally be considered to have the population and demographics to support a newspaper. Starting in April, 2012 the New Orleans Times-Picayune did not publish a daily edition, making New Orleans the largest American city without a daily newspaper; however the newspaper resumed a daily print edition in 2013. As of 2013, however, the major — and only — daily newspapers in Portland (OR), Cleveland (OH) and Newark (NJ) were moving towards reduced home delivery or daily editions on less than four days a week, and increasing emphasis on their online editions.

Noam (2009) presents data to establish the population sizes required to sustain various levels of newspaper competition. The population size required for cities to generally be assured of sustaining a daily newspaper was 100,000 in the year 2000, while this cutoff was around 50,000 in 1980. Cities of a million or more could generally sustain three newspapers in 2000, but similar-sized cities in 1980 could support more than five. These numbers bear out at the local level the same trends that we illustrated nationally in Section 2: the number of newspapers in America has simply not kept pace with the growth of population. As a result, most newspaper readers today must live in a very large city in order to be assured of a choice between local



newspapers. Berry and Waldfogel (2010), which we discuss in more detail in the next section, also provide evidence that the number of newspapers in a market does not increase linearly with population.

Circulation declines and newspaper closings have direct effects on other metrics in the newspaper industry. As we discussed in Section 2, advertising revenue in this industry has plunged. While all categories of advertising have declined sharply, the biggest losses have taken place in classified advertising, an area where local newspapers used to charge monopoly rates for listings, but now face competition from cheap or free websites such as Craigslist and Monster.com. Another measure of how much newspapers have declined is in their employment: the number of full-time journalists at daily newspapers fell from 57,000 in 1989 to around 41,000 in 2010 according to the American Society for Newsroom Editors.<sup>6</sup>

The empirical observation that newspapers have steadily declined in their number and circulation over a period of decades has prompted research into the causes. Bucklin et al. (1989) study predation in the newspaper industry. The stated motivation for their analysis is the declining number of US cities that can support multiple newspapers, and they discuss conditions under which firms in a duopoly or triopoly may try to force rivals out of the market. They stress that the high fixed costs in the newspaper industry – first-copy costs are between 40% and 50% of total production costs according to research cited by them – increases the payoff for predatory action by a duopolist.

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<sup>6</sup> See <http://asne.org/>. Similar data are provided by PEW: <http://stateofthemediamedia.org/>.

Bucklin et al. also point out that the interdependence of advertising and circulation—in other words, the two-sided nature of the industry, as we would describe it today—amplifies the importance of newspaper output, since a decline in circulation hurts both sources of newspaper revenues. Importantly, this makes it easier to financially ruin a rival, since even a small decrease in a firm’s output can make it impractical to stay in business. They conclude by predicting that the slide towards monopoly in US central-city newspaper markets is inevitable. Indeed, their predictions have largely been borne out in the 24-year period since their article was written.

Rosse (1980a) discusses reasons for the decline of direct newspaper competition. Among the many reasons he considers, two in particular stand out as interesting. First, the rise of television and, especially, that medium’s more efficient role in the advertising market, has affected newspapers, particularly those in big cities. Second, Rosse describes the effect on newspapers of the suburbanization of America in the post-war period. Rosse suggests that this was a further hit to big city papers, since there was no longer sufficient market segmentation to support multiple newspapers in the same city. Further, suburban newspapers faced a smaller, more homogeneous audience, and therefore was little need for multiple newspapers in these areas.

The increased pace of newspaper shutdowns in recent years is no doubt due to stiff competition from online sources. This competition affects newspapers both due to a loss of readers, which then directly lowers advertising revenue, but also due to a loss of classified advertising, which is traditionally an extremely profitable revenue source for print newspapers. Kroft and Pope (2013) document that entry by the classified website Craigslist has directly reduced the amount of classified advertising in print newspapers, and Seamans and Zhu (2014) show that these effects

then propagate to the other sides of the newspaper — circulation and display advertising. We discuss the effects of the Internet on print media in more detail in Section 6.

The decline of newspapers in the US has prompted policymakers to consider changes to help the industry. The most prominent example is the Newspaper Preservation Act of 1970, which allowed the formation of Joint Operating Agreements (JOAs). We discuss the literature on JOAs in more detail in Section 5.

### 3.3 Economies of Scale in Newspaper Markets

A number of studies have pointed to the importance of economies of scale in newspaper markets, and suggested that these explain the high concentration in this industry. Dertouzos and Trautman (1990) show that there are significant economies of scale in both circulation and newspaper content. Rosse (1967) also finds important economies of scale in both the circulation and advertising sides.

Reddaway (1963) provides evidence on the importance of fixed costs in the UK newspaper industry, using detailed information on the cost structure of various papers, including the differences between local and national papers, as well as between quality and popular papers. Reddaway asks how it can be that the “quality” national papers in Britain could compete with the “popular” papers, when the former had a tenth of the circulation of the latter, as well as higher per-copy costs stemming from their larger physical size. The answer, of course, lies in the greater ability of quality papers to charge advertisers for delivering the most desirable audiences to them.

Berry and Waldfogel (2010) examine how market size affects the quality and variety of products. They focus on two markets that are often defined at the level of a city or metropolitan area: restaurants and newspapers. They show that while the range of qualities in the restaurant industry increases linearly with market size, the same is not true of newspapers. Although the *average* quality of newspapers is higher in bigger markets, these markets do not offer much additional variety. Berry and Waldfogel suggest that fixed costs are the explanation. In particular, they argue that quality improvements in newspaper markets depend on investments in fixed costs, such as more or better reporters and editors, rather than on marginal costs, such as paper, printing and distribution. They note that, while some economies of scale in newspaper production seem clear, it is not the case that newspapers in even very small markets charge much higher prices, suggesting some upper bound on how important economies of scale are. Of course, this argument de-emphasizes the importance of the advertising side of the industry, and in fact Berry and Waldfogel focus entirely on the circulation side of the market, treating advertising revenue as a per-reader subsidy.

Berry and Waldfogel show that, even in very large markets, the market size of the largest newspaper remains at least 20%, and usually considerably more, in sharp contrast to the restaurant industry. The results appear to support the idea that, as market size increases, at least one newspaper has the incentive to invest considerably in quality in order to retain readers. Newspapers in larger markets tend to have a bigger staff of journalists, be physically bigger in terms of page size, and have a higher quality of reporting, as measured by the number of Pulitzer prizes won per staff member.

George and Waldfogel (2003) examine the relationship between consumer preferences and the number of daily newspapers that a market can support. They use zip-code level newspaper circulation data in the US to show that race has an important relationship with the number of newspapers in a market. In particular, the tendency for blacks to purchase a daily paper increases with the aggregate number of blacks in the market but decreases with the number of whites. The tendency for whites to purchase a newspaper increases in the number of whites but is not affected by the number of blacks. There is a similar finding with regard to Hispanics and non-Hispanics, but other characteristics, such as age and income, do not influence newspaper sales in this manner. George and Waldfogel present evidence showing that these results are driven by product positioning; in other words, newspaper content responds to the racial makeup of readers.

What are the reasons why the newspaper industry in the United States is dominated by local monopolies? Economies of scale are, of course, an important reason, as discussed above. However, the other obvious candidate is the two-sided nature of the industry and, especially, the unique effect of advertising in the newspaper industry. Unlike in media such as television and radio, newspaper readers do not necessarily dislike advertising. It is not clear that newspaper publishers impose a trade-off between column inches devoted to content versus advertising, unlike the obvious such tradeoff in broadcast media. Newspaper readers should find it costless to skip over advertising, and there are good reasons why certain types of advertising, such as classifieds, may be positively valued by consumers. A similar argument holds in magazine markets.

If we assume, then, that print media advertising is at least weakly positive in the consumer utility function, it implies that there are positive cross-elasticities of demand with respect to both goods provided by publishers. This can lead to a positive spiral whereby firms with greater circulation attract more advertising, which then further attracts readers and so on. In the limit, these spirals can imply a monopoly situation, abstracting away from other factors, such as consumers' taste for variety, which may support differentiated products. In fact, newspapers and magazines are not the most extreme example of such a model. Rysman (2004) shows that in the Yellow Page industry, advertisers naturally prefer directories with greater circulation, and consumers consult directories with more advertising. Kaiser and Song (2009) confirm the hypothesis that readers in print media may value advertising positively by examining German consumer magazines. See Section 5 for a more detailed discussion of this topic.

This argument relating to network effects can be an important complement to the scale economies hypothesis to explain newspaper concentration. Yet, there remains little work showing how such positive spirals affect market structure in newspaper and magazine markets. Two examples of studies that model this phenomenon are Gabszewicz et al. (2007) as well as Häckner and Nyberg (2008). However, there is no empirical study we are aware of that investigates this matter. In fact, most structural analyses of newspaper and magazine markets model readers as being indifferent to advertising; see Fan (2013) for a recent example.

### 3.4 Newspaper Chains

An interesting development in the newspaper industry is that the number of newspapers that are part of chains has risen tremendously. Noam (2009) attributes this phenomenon to economies of scale, which, as discussed in the previous section, grew in importance with the advent of faster presses, and typesetting equipment, all of which was quite expensive. Noam emphasizes that chain ownership has steadily replaced independent, local newspapers. The fraction of daily papers owned by newspaper groups rose from 15% in 1930 to 65% in 1980. While this trend has slowed in recent years, it remains the case that 70% of newspapers today are owned by an out-of-town company.

Fu (2003) documents the increasing importance of newspaper chains in the US, and points out that by 1997, the top 20 newspaper chains owned 32% of daily newspapers, but 62% of daily circulation, showing that chain newspapers tend to be larger. Chandra and Collard-Wexler (2009) document a similar phenomenon of chain consolidation in Canada. They describe how 75% of Canadian daily newspapers changed ownership between 1995 and 1999, primarily driven by the expansion of two nationwide chains.

The growth of newspaper chains raises two concerns: the first is that it can reduce the variety of opinions put forward by the media. This is especially the case as chain newspapers tend to carry the same syndicated columnists in all of their papers. The second concern — potentially more important from an Industrial Organization perspective — is that the rise in chain ownership increases the possibility of multi-market contact between publishers and raises concerns about tacit collusion. Both papers mentioned above discuss these issues. Fu (2003), in particular, examines multi-market contact between newspaper chains in detail and shows that newspaper

publishers who compete with each other in multiple markets tend to have higher advertising prices. Ferguson (1983) provides evidence that newspapers that are part of chains tend to have higher advertising rates. Dertouzos and Trautman (1990) note that the rise of newspaper chains has been subject to both Congressional hearings and investigations by the Federal Trade Commission. We discuss their paper in more detail in Section 4.1, but note for now that they find no evidence that chain newspapers are more efficient than independents.

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#### **4. Newspapers and Magazines as Two-sided Markets**

An important feature of print media is that they cater to two different types of consumers: readers and advertisers. Advertisers value circulation so that advertising demand and magazine demand are related. At the same time, readers may have a (dis-)taste for advertising, leading to the two sides of the market being inter-related. These two-way network externalities create a two-sided market, and print media markets are prototypical examples of it. In this section, we review papers that use the two-sided markets framework to analyze print media markets, although we note that a large number of studies on this topic existed well before the recent development of the two-sided market literature. We also review some special topics on pricing in these industries. Readers should see (X-AJ) for a more comprehensive review of the two-sided market literature. Our focus in this section is on empirical studies but we also discuss theoretical contributions where appropriate.

##### **4.1 The Older Literature on Cross-Externalities in Print Media Markets**



Common to the older literature on print media markets and cross-externalities is that it primarily is what we would nowadays call “structural”. These papers derive (inverse) demand equations for circulation and advertising, which are subsequently estimated. These equations are linear and therefore do not allow for competition. Like recent structural studies, the early scholars use their models to conduct counter-factual analyses and to calculate own-price elasticities.

Network externalities in newspaper markets had been recognized decades ago with the diagrammatic exposition of the newspaper firm’s profit maximization problem by Corden (1952, 1953). In other early work, Reddaway (1963) – then President of the British Royal Commission on the Press – emphasized the role of circulation for the demand for advertising.

The first paper to actually estimate a “structural” model with interrelated demand was Rosse (1967) who studies why the newspaper industry had become more concentrated over time. One of the explanations for increased concentration is economies of scale in production, as we discussed in Section 3. Rosse’s (1967) paper has two parts, an analysis of economies of scale in newspaper and advertisement production, and an analysis of advertising space. The first part endogenizes the number of content pages, cover prices, ad rates, circulation and advertising space and separately estimates each (interrelated) equation. He uses the parameters of these equations to back out estimates for marginal production cost, finding evidence for returns to scale in newspaper and advertisement production. In fact, Rosse’s (1967) is the first paper to estimate marginal cost based on functional form assumptions and under the absence of actual cost data.<sup>7</sup>

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<sup>7</sup> Rosse (1967) was also among the first to take Chamberlin’s (1960) model of monopolistic competition to data.

The second part of Rosse (1967) deals with the estimation of demand elasticities and serves to corroborate the earlier findings regarding economies of scale using a longer time span and a broader set of newspaper firms. The second study does in fact confirm the initial finding of returns to scale in production. It also indicates that returns to scale have remained fairly constant since 1939, which may not explain the observed increase in newspaper concentration. The second part of Rosse (1967), explained in much greater detail in Rosse (1970), constitutes the first true estimated two-sided market model as he makes advertising demand dependent on circulation, and circulation dependent on advertising.

In a paper that analyzes the importance of audience characteristics for advertising rates, Thompson (1989) deals with the trade-off between newspaper circulation and the share of high-income newspaper readers. The paper also explicitly accounts for the two-sidedness of the newspaper market and estimates a system of simultaneous equations for circulation, cover prices and advertising rates.

Much of the literature that followed also concerned itself with concentration in print media markets, often motivated by the occurrence of “one newspaper cities” in Australia (Merrilees 1983, Chaudhri 1998) and the US (Blair and Romano 1993; Bucklin et al. 1989; Dertouzos and Trautman 1990; Ferguson 1983).

Merrilees (1983) provides a primarily descriptive event study of a price war between Sydney-based newspapers in the 80s. His theoretical considerations include an equation for the demand

for advertising that depends on circulation. He does not, however, account for reverse network effects. Bucklin et al. (1989) estimate a system of simultaneous equations where newspapers set ad rates, cover prices and editorial quality to maximize profits. They show that feedbacks between each market side exist and argue that these feedback structures make the newspaper industry prone to what they refer to as “ruinous competition”.

In their study of US newspapers, Dertouzos and Trautman (1990) also focus on the competitive situation of media firms and estimate a model that takes into account the interrelatedness between circulation and advertising. Their main findings are that there exist scale economies in newspaper production, that these are not larger for chain newspapers than for independent ones and that newspapers in adjacent geographical areas put competitive pressure on local newspapers. They do not, however, find evidence for competitive pressure from radio broadcasting.

In an earlier study of media cross-ownership that, however, does not consider feedbacks from either market side, Ferguson (1983) examines cross-ownership of newspapers and other media; we discuss this paper in more detail in Section 6.

## 4.2 The Two-Sided Market Framework

The earlier papers on the newspaper market typically assumed monopoly with respect to the readership side. As a result, the literature does not consider how the structure of prices emerges from competition between two platforms that strategically set prices to each side to take into

account interrelated demands. This actually constitutes a key question in print media markets and two-sided markets more generally: how does a print medium as a platform price each distinct type of user? Armstrong (2006), Gabszewicz et al. (2001) as well as Rochet and Tirole (2003) provide theoretical frameworks of two-sided markets to explain the pricing structure of these firms, and Weyl (2010) generalizes Rochet and Tirole's model.

A central finding of Armstrong (2006) is that prices on either market side are determined by the size of cross-group externalities – the network effects that run from the reader market to advertising and vice versa –, the way fees are charged (lump-sum or on a transaction basis) and whether advertisers multi-home, i.e. advertise in multiple print media. Cross-group externalities make competition fiercer and reduce platform profits. He shows that there is under-advertisement compared to the social optimum since platforms operate as monopolists on the advertising market. Armstrong (2006) also coins the term “competitive bottleneck” model where readers single-home and advertisers multihome. He additionally considers two other types of platform competition, monopoly platforms and competing platforms.

That publishers have an incentive to cross-subsidize one side of the market by the other has been discussed in earlier theoretical work by Rochet and Tirole (2003).<sup>8</sup> They show that it may pay off for publishers to set copy prices even below marginal cost in order to make the print medium more attractive for advertisers. In their paper, which is primarily written with the credit card market in mind, Rochet and Tirole (2003) distinguish for-profit and not-for-profit platforms.

They compare the respective market outcomes in each case to the social optimum and recognize

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<sup>8</sup> Armstrong's (2006) model has a general setup quite similar to Rochet and Tirole (2003) but differs in important ways in how the benefits of joining a platform are defined, which changes the definition of profit-maximizing prices in the two papers.

that prices on one market side depend on the degree of multi-homing on the respective other market side. The consequences of multi-homing for market outcomes is an issue that is the focus of a few of the subsequent papers that we shall review below.

Gabszewicz et al. (2001) also use a Hotelling setup to explain the pricing structure in newspaper markets. They consider what later was termed a competitive bottleneck model and show that advertising revenues are used to subsidize the reader market.

We now turn to recent empirical work that uses structural methods based on the two-sided markets framework. Rysman (2004) was the first to derive a structural model for a market with externalities where only advertisers are priced: Yellow Pages. He establishes that network cross-effects exist in both directions in the Yellow Pages market: advertisers value the number of readers and readers value advertising. He estimates a nested logit model for the demand for Yellow pages and an inverse demand equation for advertising. His inverse advertising demand function assumes that readers of Yellow pages single-home, i.e., they read at most one Yellow page directory, an assumption that appears reasonable in this setting. His estimates suggest that an internalization of these network effects would significantly increase surplus.

Kaiser and Wright (2006) was the first paper to estimate a structural model of two-sided markets where both sides are priced. This is not the case in Rysman's Yellow Page analysis because directories are usually given free to consumers. Kaiser and Wright build on the generic two-sided market model of Armstrong (2006, discussed above) to set up an estimable structural model for German duopoly magazine markets. They derive magazine and advertising demand from a

Hotelling specification where magazines compete in differentiated Bertrand fashion. The parameters of these demand equations are subsequently used to back out the subsidies publishers pay to each market side, as well as marginal cost, distribution cost and profits. Kaiser and Wright (2006) also conduct comparative-static analyses whose results are consistent with the perception that prices for readers are subsidized (cover prices are around or even below marginal cost) and that magazines generate their profits from advertisements. They also find that advertisers value readers more than readers value advertisements. This implies that higher demand for copies raises ad rates and that an increased demand for advertisements decreases copy prices. They also show that their estimated production costs are similar to those reported by industry sources. Finally, they show that their results are qualitatively invariant to accounting for multi-homing on behalf of advertisers (advertisers who place their ads in multiple magazines) and readers (readers who purchase multiple magazines).

In a study of market power in the Italian national newspaper industry that also uses structural econometric modeling and that we discuss in more detail in Section 5, Argentesi and Filistrucchi (2007) assume away feedbacks from the advertising market to the reader market. Advertising demand and circulation are both specified as logit-type demand models. They back out markups from their estimations and compares estimated and actual markups to infer market conduct.

In a recent study of the US newspaper industry that we discuss in more detail in Section 5, Fan (2012) assumes that newspaper readers do not care about advertising which implies that network externalities only flow from readers to advertisers but not vice versa. This assumption is supported by her estimation results.

Van Cayseele and Vanormelingen (2009) also provide evidence for advertising neutrality of newspaper readers. Their paper generalizes Kaiser and Wright (2006) by allowing for oligopoly (instead of duopoly) competition and multi-market contact of publishers. They derive a model of supply and demand for newspapers and advertising, using a nested logit model for circulation and a linear inverse demand function for advertising similar to that of Rysman (2004). Their data on Belgian newspapers allows them to assess newspapers' market power and market competitiveness before the background of a major market consolidation. They also evaluate an actual merger that occurred in the Belgian newspaper industry.

In an attempt to test theories derived from behavioral economics in an Industrial Organization setting, Oster and Scott Morton (2005) use US magazine data to analyze whether wedges between subscription and newsstand prices are larger for magazines that generate future benefits (like investment magazines) and that generate instantaneous benefits (like leisure magazines). They argue that this wedge should be relatively larger for investment magazines than for leisure magazines since newsstand consumers fully value the leisure good but discount future payoffs from investment magazines. In their data for 300 consumer magazines, they find evidence that such wedges do in fact exist, which implies that publishers are aware of the time-inconsistent behavior of their customers. Oster and Scott Morton (2005) also consider feedbacks from the advertising market to the reader market by including advertising rates in their equations for relative newsstand and subscription prices, finding negative effects of adrates on relative magazine prices. This is consistent with the view that publishers have incentives to lower reader prices to increase advertising revenues.

The inter-relatedness between advertising and readership does not only have implications for pricing structures. It may also have effects on the political diversity of media. Assuming that readers dislike advertising, Gabszewicz et al. (2001) derive a three stage game for publishers who first set their political leaning, then ad rates and finally cover prices. They show that the feedback from readers to advertisers induces publishers to locate their political opinion in the center. The feedback from readers to advertising therefore generates a “median voter behavior” result whereas a model that excludes advertising (where only political leaning and cover prices were state variables) would generate classical Hotelling results: publishers position themselves at the two extremes of the political spectrum.

A more recent study of ideological diversity of US newspapers in 1924 that accounts for network effects from readers to advertisers (but that assumes readers are ad-neutral) is Gentzkow et al. (2012). They estimate a model of demand for newspapers, cost, entry and revenues to show that media competition increases diversity and that competition policy needs to take into account the print media market’s two-sidedness.

#### 4.3 Pricing Issues in Print Media

We now discuss a few issues related to pricing in newspapers and magazines. While the two-sided market framework suggests that advertising and circulation prices are determined jointly and therefore need to be considered at the same time, there are a few interesting pricing phenomena that need to be considered outside of this framework.



More importantly, while Media Economics usually falls squarely within the purview of Industrial Organization, some aspects of print media pricing are of interest to other economists, too.

Specifically, the macroeconomics literature on the frequency of price adjustment has devoted some attention to media markets. Cecchetti (1986) examines the frequency of price adjustment in US magazine markets using news-stand pricing and sales data for 38 magazines between 1953 and 1979. He shows that magazines' cover prices exhibit substantial stickiness, allowing their real value to erode by as much as a quart before the next price adjustment. However, he also shows that prices change more frequently during periods of high inflation. Willis (2006) uses the same data to confirm some of Cecchetti's findings.

Knotek (2008) examines newspaper prices — specifically, the fact that newsstand prices are usually a multiple of a quarter. He points out that newspaper prices have typically not required pennies for more than the last 40 years. The point is that these round-number prices facilitate quick transactions and are more convenient than other prices. Knotek develops a model of how the convenience of transactions affects the choice of round-number pricing and shows that quarterly data from six large US newspapers are generally consistent with the predictions of the model.

Asplund et al. (2005) examine how likely newspapers are to vary prices on the circulation versus the advertising side in response to financial constraints. They argue that newspaper advertisers are not locked-in to any given newspaper and therefore will exhibit a much more elastic demand. Readers, on the other hand, develop tastes and preferences for certain newspapers and therefore

face high switching costs and are less likely to switch papers in the event of a price increase. They examine Swedish newspapers in the midst of the deep recession of 1990-1992 and show that publishers, who were faced with liquidity constraints during this period, were far more likely to raise subscription rather than advertising prices.

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## **5. Advertising in Newspapers and Magazines**

We devote this section to a discussion of the special role of advertising in newspapers and magazines. While the role of advertising is, of course, important in all advertising-financed media, it is particularly interesting, from a research perspective, in the case of print media. Unlike in the radio and television industries, it is not obvious that advertising imposes a cost on the circulation side. There are two reasons for this: first, print media do not necessarily involve the platform having to tradeoff between advertising and content; second, consumers may be able to skip advertising more easily in print media.

The question of whether consumers value advertising positively or negatively is therefore important in newspapers and magazines. We will review the theoretical literature on this question in Section 5.1, and the empirical literature in Section 5.2. We will address the related issue of multi-homing by readers in Section 5.3. Finally, in Section 5.4, we discuss the how audience characteristics determine advertising rates in print media.

### **5.1 Reader valuation of advertising: Theory**

We have laid out the effects of the interrelatedness between advertising and circulation in Section 4. The network effects exist no matter whether readers like or dislike advertising. While it is clear that advertisers appreciate higher circulation, at least given reader characteristics (Thompson 1989), it is not obvious whether the same is true in reverse; i.e. whether readers like advertising in print media, or if advertising constitutes a nuisance. A positive mapping between advertising and circulation implies that publishers have incentives to subsidize circulation through advertising revenues, as in Kaiser and Wright (2006). If readers appreciate advertising, they simultaneously have incentives to subsidize advertising. The degree to which each market side subsidizes the other depends on the relative appreciation of each market side. If readers dislike advertising (but advertisers appreciate circulation), the reader side of the market will not subsidize advertising (but subsidies will still flow from advertising to circulation).

Reader preferences with respect to advertising are therefore central to the analysis of pricing structures in print media markets. Most theoretical studies of media markets – of which we shall review some below – assume that readers dislike advertising (Anderson and Coate 2005; Ambrus and Reisinger 2005; Ambrus et al. 2012; Anderson 2005; Häckner and Nyberg 2008; Gabszewicz et al. 2001; Jullien et al. 2009; Kind et al. 2003, 2007; Kohlschein 2004; Kremhelmer and Zenger 2004; Reisinger et al. 2009).

Reader neutrality with respect to advertising is assumed by Gabszewicz et al. (2001), a paper we briefly discussed in Section 4.2 and to that we shall return to below, who argue that it is simple to avoid advertisements in newspapers since it is easy to get past them. Empirical studies that

assume advertising neutrality include Gentzkow et al. (2012) and Fan (2012). This shuts down the network effect from advertising to readers and collapses the two-sided market into a market with network externalities from readers to advertisers, thereby simplifying the analysis and avoiding fixed-point problems. By contrast, the models in Kaiser and Wright (2006) as well as Chandra and Collard-Wexler (2009) do not impose a priori restrictions on reader's attitude towards advertising.

The importance of the degree to which readers dislike advertising is highlighted by Anderson and Coate (2005) who study the under- or over-provision of ads in a two-sided TV market setting. In an extension to previous work, Anderson and Coate (2005) allow the degree to which viewers dislike advertising to vary. They assume that viewers are distributed on a Hotelling line and that platforms are located at each end of the lines. Viewers are allowed to watch a single channel, while advertisers can multi-home. They show that advertising volume may be too high or too low, depending on how much viewers dislike advertising.

In an extension to Anderson and Coate (2005), who do not allow for multi-homing viewers, Gabszewicz et al. (2004) allow viewers to mix their time between channels. They set up a sequential Hotelling game where channels first choose programming and subsequently determine the ratio of ads to content. They show that when advertising is nuisance, programs will be differentiated, which contrasts the very early finding of Steiner (1952) who predicts duplication of content among competing channels.

That the degree of advertising nuisance is important for market outcomes is also underscored by Peitz and Valletti (2008) who analyze optimal locations of stations in terms of programming. They show that if viewers strongly dislike advertising, the ratio of advertising to content is larger in free-to-air TV, where all revenues are from advertising, than in pay TV. They predict that free-to-air TV comes with less differentiated content whereas program differentiation is maximal for pay-TV stations. The analogy to the business model of newspapers and magazines here is that free-to-air TV is comparable to free newspapers while pay TV compares to paid newspapers and magazines. Free newspapers and their impact on market structure have, however, not been systematically studied so far.

Choi (2006) also compares free-to-air and pay TV and studies the types and extent of market failures under the two regimes under free entry. Similarly, Jullien et al. (2009) investigate the effects of free platform entry where platforms are financed both from ad revenues and subscriptions. They predict excessive entry and too low ad levels compared to the social optimum. Both papers assume that advertising is a nuisance.

Finally, the importance of nuisance costs is highlighted by Reisinger (2012) who shows that profits may increase the more viewers dislike advertisements and that channels make revenues from advertising despite price competition for advertisers. In his model, there are single-homing advertisers and channels are differentiated from a viewer's perspective.

## 5.2 Reader valuation of advertising: Empirics

Our discussion of the theoretical literature has shown that reader's attitude towards advertising is important for market outcomes. We now review the empirical literature that has dealt with this topic. This literature has arrived at very mixed results. The older papers on two-sided market by Bucklin et al. (1989), Dertouzos and Trautman (1990) and Thompson (1989) for US and British newspapers, respectively, find that readers appreciate advertising. Sonnac (2000) conducts a cross-country descriptive analysis and finds that readers' attitudes towards advertising vary across countries.

The more recent literature tends to find positive effects of advertising pages on print media demand. Kaiser and Wright (2006) show that readers appreciate advertising for their sample of German magazines. Their data set is, however, not representative of the German magazine market since it comprises only of magazine markets with duopoly competition. Filistrucchi et al. (2012) also find evidence for readers of Dutch newspapers appreciating advertising while van Cayseele and Vanormelingen (2009) show that Belgian newspaper readers are advertising-neutral.

In their analysis of the entire German magazine market, Kaiser and Song (2009) find evidence that advertising is valued positively by readers. They estimate logit demand models (with and without random effects), finding little evidence for advertising being nuisance to readers. On the contrary, in markets where there is a close relationship between advertising and content such as in Women's magazines, Business and politics magazines as well as car magazines, readers in fact have a clear appreciation of advertisements. To study the role of informative vs. persuasive advertising more closely, Kaiser and Song (2009) categorize each magazine in terms of

advertisement informativeness. They subsequently link the degree of informativeness to reader's perception of advertising and demonstrate that there is a positive link between informative advertising and reader's appreciation of advertising.

Depken and Wilson (2004) use data on 94 US consumer magazines to study the effect of advertising on advertising rates and advertising demand. They define advertising as "unambiguously good" if advertising increases both sales and prices and as "ambiguously good" if it decreases sales but increases ad rates (and vice versa for "bad" effects of advertising on sales and ad rates). The main finding of the paper is that advertising tends to be "unambiguously good" for 45 magazines and "ambiguously good" for 19 magazines. For 31 magazines it is an ambiguous bad.

### 5.3 Multi-homing

A central aspect of theoretical work on two-sided markets apart from the nuisance cost to readers or viewers is multi-homing by readers and advertisers. Armstrong (2006) coins the term "competitive bottleneck" model where readers single-home and advertisers multi-home, a model that found widespread use in the theoretical literature, e.g. by Anderson and Coate (2005) that we discussed above. Apart from the results already discussed, Armstrong (2006) shows that there is under-advertisement compared to the social optimum since platforms operate as monopolists on advertising market.

The other main puzzle that the early theoretical study by Steiner (1952) generated apart from content duplication is that advertising levels unambiguously increase with competition. Ambrus and Reisinger (2005) were the first to notice that both anomalies may be reversed if the models allow for multi-homing viewers. In their follow-up paper, Ambrus et al. (2012) find that advertising levels can go up or down depending on how viewer tastes are correlated. In their setting, viewers are allowed to use multiple platforms, platforms do not steal viewers from one another but competition changes the composition and hence the value that advertisers attach to consumers – multi-homing viewers are worth less to advertisers than singlehomers. Ambrus et al. (2012) coin this type of competition “either or both competition” (viewers watch either or both channels). They find that entry increases ad-levels if viewer preferences are negatively correlated. The paper also comes with an empirical analysis that is based on 68 cable channels received by a viewer on a base lineup observed between 1989 and 2002 validates theoretical implications. Ambrus et al. (2012) regress the number of supply choices on the number of channels in each market segment (news, sport, info-tainment) and find large positive effects of competition on the number of avails.

In a related paper, Anderson et al. (2012) also demonstrate how to resolve the early Steiner (1952) puzzles by allowing for viewer multi-homing. In their model, platforms become more differentiated when faced by competition in order to attract exclusive (single-homing) viewers. They show how multi-homing viewers affect platform differentiation, finding that platforms have incentives to make content unattractive to multi-homing viewers, which works against Steiner’s duplication result. Anderson et al. (2012) allow, in contrast to Ambrus et al. (2012), for both



multi-homing viewers and endogenous platform quality which is assumed to be fixed in Ambrus et al. (2012).

Multi-homing also is a major issue in Athey et al. (2011), a paper that discusses alternative viewer tracking technologies and the implications they have for pricing and advertising demand. They consider multi-homing viewers and let advertising effectiveness differ between single- and multi-viewing viewers by allowing viewer tracking to be imperfect. They implicitly assume exogenous ad levels and allow for heterogeneous advertiser demands.

A key assumption of the theoretical literature is that multi-homing viewers have lower value for advertisers than single-homers have. This assumption is questioned by Chandra and Kaiser (2014), who show that contacting potential consumers via alternative channels may actually increase the value that multi-homing readers generate.

#### 5.4 The Determinants of Advertising Rates

The determinants of advertising rates have long been studied in empirical papers, while there is no related theoretical treatment. The study by Thompson (1989), which was mentioned in Section 2, was among the first to recognize the importance of certain types of readers for advertisers. He finds that high-income readers are more valuable to advertisers than are low income readers in his sample of 34 British and Irish quality and tabloid newspapers. This leads him to conclude that there exists a tradeoff between circulation and a newspaper's ability to target certain types of readers. He estimates a four-equations structural model for circulation,

cover price and two types of advertising rates. As in other earlier studies, the demand for copies and the (inverse) demand for advertising space are linear and do not depend on prices of competing newspapers. Thompson (1989) estimates a simultaneous equation model and backs out own-price elasticities of demand.

The importance of reader characteristics has subsequently been studied by Koschat and Putsis (2000a,b) in their analysis of 101 US magazines. They essentially estimate a linear hedonic pricing equation where all variables are assumed to be exogenous. They find that young and affluent readers have a positive effect on advertising rates. In Koschat and Putsis (2000a), it is argued that advertiser's preferences for particular types of readers may induce publishers to – as they phrase it – “skew” content toward those type of readers. Koschat and Putsis (2000b) additionally conduct a counter-factual analysis where they analyze the returns to fully target (which they refer to as “unbundling”) the most relevant audiences from an advertiser's perspective. They find that if publishers indeed targeted the most profitable audiences, they would be able to considerably increase profits. A critical assumption of their paper is, however, that targeting has no effects on circulation.

In another paper for the US magazine industry, Depken (2004) uses the same data as Depken and Wilson (2004) to show that both reader income and, in contrast to Koschat and Putsis (2000a,b), age have positive effects on advertising rates.

While these studies use magazine data and readership characteristics data at the magazine level, Chandra (2009) uses zip-code level on circulation and readership characteristics for U.S.

newspapers. He finds that newspapers that operate in a more competitive environment charge lower cover prices but higher ad rates compared to similar newspapers that face less competition. To explain his results, Chandra subsequently shows that newspapers in more competitive markets are better able to segment readers according to their location and demographics, thereby catering to a more homogeneous “targeted” audience that is appreciated by advertisers.

Given that magazines are highly segmented across reader characteristics (one can think of fashion magazines where it is sometimes hard to distinguish between advertisements and content), and therefore almost arbitrarily targetable, it can be argued that magazine readers may be more likely to appreciate advertisements than newspaper readers since newspapers are targeted to a lesser extent and instead cater to a geographically segmented audience. At the same time, it may be the case that advertisements are more easily skipped in newspapers, precisely because it can be difficult to distinguish ads from content in magazines. However, studies that deal systematically with such differences do not currently exist.

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## **6. Antitrust Issues in Newspapers and Magazines**

Issues related to antitrust and market power in print media deserve a special discussion. As this section will show, numerous authors have noted that the antitrust economics of media, and of two-sided markets in general, have unexpected or counter-intuitive features. Evans (2002) points out that, in two-sided industries, an analysis of market definition and market power that focuses on a single side will be misleading. As Rysman (2009) notes, two-sided markets generally

exhibit network effects and are therefore liable to tip towards a single dominant platform, which makes these markets of interest to competition authorities.

In addition, the common feature exhibited by media, such as newspapers, of setting price below marginal cost on one side of the market can lead to surprising policy prescriptions with regard to mergers and market concentration. As with other two-sided industries, mergers in these markets can theoretically raise prices, for both sets of consumers (Evans and Schmalensee, 2012). This section provides an overview of research concerning market power and mergers in print media. We direct the reader to (X-FKS) on media mergers for a more general treatment. We will also discuss two antitrust-related topics that are of special interest in the newspaper industry: Joint Operating Agreements, and vertical price restrictions.

The first issue we discuss is estimating market power in the newspaper industry. Argentesi and Filistrucchi (2007), briefly discussed in Section 3, estimate a structural model of newspaper demand by both sets of newspaper consumers. Their goal is to examine whether the observed pattern of prices in the Italian newspaper industry is consistent with competitive behavior rather than with coordinated behavior, and they analyze this issue separately for each side of the market while taking into account the two-sided nature of the newspaper industry. As they point out, a naïve examination of price elasticities on one side of the market does not necessarily imply anything about the degree of market power that firms enjoy. The authors specify a nested logit model of demand on the subscriber side and a simple logit model on the advertiser side, for the four main national newspapers in Italy. Two points are worth noting: first, they assume that readers are neutral towards advertising, and second, they assume single-homing on both sides of

the market. While this assumption may be reasonable for readers, it is a definite simplification on the advertiser side, but is driven by data limitations. Finally, the authors specify the supply side by modeling newspaper publishers as setting both prices simultaneously.

Argentesi and Filistrucchi estimate the implied markups that publishers would set under four different scenarios, which correspond to competition or collusion on each side of the market. They then compare these implied markups with estimates of the actual markups that publishers set, based on data on newspapers' revenues and costs. They conclude that the data are most likely to be consistent with competition on the advertising side but collusion on the subscription side.

## 6.1 Mergers

Ownership consolidation and mergers are a particularly important topic in newspaper markets. As with any industry, consolidation leads to concerns about higher prices, and this is especially the case in a market such as the US newspaper industry, which already tends towards local monopolies. But the newspaper industry also raises concerns about the diversity of opinion, and as a result this matter is particularly controversial. Anderson and McLaren (2012) state: "The controversy is both political and economic: even if a media merger increases profit, it affects how well informed is the public and hence political outcomes. This means that traditional IO merger analysis is inadequate for media mergers, and until recently policy debates have been dominated by non-economists."

Nevertheless, in recent years there have been a number of studies that examine the issue of newspaper mergers, both from the traditional Industrial Organization perspective of prices, and from the issue of diversity of opinion. George (2007) studies the effect of ownership consolidation on the variety of topics covered by US daily newspapers. As multi-product firms internalize business-stealing externalities, she points out that mergers can lead owners to eliminate duplicative products and change the content of others. She measures the variety of topics covered by newspapers using Burrelle's Media Directory, which provides data on the titles of newspaper staff. She examines the period from 1993 to 2001, which saw a large number of newspaper acquisitions. Her results show that a reduction in the number of newspaper owners in a market leads to an increase in the degree of separation among the existing newspapers. Moreover, the aggregate number of topics covered per market increases with ownership consolidation. Thus, there is support for the notion that consolidation may actually benefit consumers by increasing the variety of topics covered by daily newspapers. George also finds that the increased ownership concentration did not reduce newspaper readership.

Chandra and Collard-Wexler (2009) also examine the issue of ownership consolidation in newspapers. Their study focuses on the price effects of mergers among Canadian newspapers, in contrast to the focus on content in George (2007). They first develop a Hotelling model of newspaper competition for readers and advertisers which shows that joint ownership of newspapers has no clear effect on prices for either subscribers or advertisers. A key feature of their model is that advertisers value not just the number of readers at a given newspaper, but also their characteristics. Given heterogeneity in reader characteristics, it is possible that in a duopoly equilibrium some readers provide a negative value to the newspaper publishers. These readers

are the least desirable from the point of view of advertisers, yet continue to enjoy the per reader subsidy that newspapers implicitly provide by setting price below marginal cost on the subscription side. Thus, duopoly newspaper firms may end up setting higher prices in equilibrium, in order to try to screen out these undesirable readers. However, under joint ownership of these newspapers, prices will fall because the monopolist will internalize the effect of high prices on both newspapers, in an analog of the traditional Hotelling model where joint ownership raises prices since the marginal consumer provides positive value to firms. They also show that advertising prices will move in the same direction as subscription prices, i.e. the effect on advertising prices is ambiguous as well.

Chandra and Collard-Wexler then empirically examine the price effects of ownership consolidation, relying on a series of newspaper mergers in Canada in the late 1990s, when about 75% of Canada's daily newspapers changed hands. They find that ownership consolidation had no discernible effect on either circulation or advertising prices.

Fan (2013) develops a structural model of the newspaper industry to analyze the welfare consequences of newspaper mergers. Her paper accounts not just for post-merger price changes, but also for newspapers adjusting their product characteristics. In addition, she generalizes the model of demand for newspapers by allowing households to purchase at most two daily newspapers, in contrast to most previous work, which assumed single-homing on the subscription side. She uses county level circulation data on US newspapers between 1997 and 2005.

Fan uses the structural estimates to perform counterfactual simulations. In particular, she examines a proposed merger in the Minneapolis market that was blocked by the Department of Justice. She shows that an analysis of reader surplus that only focuses on price effects, and ignores changes to newspaper quality understates the loss in consumer welfare. Both newspapers will raise prices post-merger, but Fan's analysis of endogenous product characteristics shows that they will also reduce product quality, which then further reduces circulation and reader welfare. Advertiser welfare also falls by more when product characteristics are endogenized. Not surprisingly, the surplus captured by newspaper publishers is higher when they are permitted to adjust newspaper quality. In addition, Fan also simulates the effects of newspaper mergers in all US markets with two or three daily newspapers, obtaining results similar to the specific case of the Minneapolis market.

Filistrucchi et al. (2012) examine a hypothetical merger in the Dutch newspaper industry. They point out that in a number of recent newspaper mergers, competition authorities in various European jurisdictions have analyzed either a single side of the market, or each of the two sides separately, instead of incorporating the feedback between the two sides. On the subscription side, Filistrucchi et al. model consumer demand as a differentiated products discrete choice problem. On the advertising side, similar to Rysman (2004) and other prior studies, the authors assume that the decision to advertise in any given newspaper is separable from advertising decisions at other publications. They model the quantity of advertising demanded at each newspaper as a function of the advertising price per reader, acknowledging that this variable is endogenous. As an instrument, they use the number of content pages in the newspaper, reasoning that content affects



total subscriptions, and hence the advertising price per reader, but should not otherwise affect advertising demand.

They use a method laid out in a companion paper, and recover estimates of newspaper publishers' marginal costs. Somewhat surprisingly, their results suggest that newspaper publishers make positive margins on the readership side, and in fact higher margins than on the advertising side. Their results suggest that readers attach a positive value to newspaper advertising. Their main contribution comes from the analysis of a hypothetical merger in the Dutch newspaper market. Their results suggest that such a merger would not directly affect advertising prices. However, it would raise subscription prices, and the resulting loss of subscribers would reduce advertising demand and would also raise advertising prices per reader; nevertheless, the estimated effects are small.

## 6.2 Newspaper Joint Operating Agreements

A unique feature of newspaper markets in the United States is the Joint Operating Agreement (JOA). As discussed in Section 1, this is a consequence of the Newspaper Preservation Act of 1970, which endeavored to preserve the diversity of newspaper voices. Romeo et al. (2003) explain the rationale behind the JOA:

“Under the protected JOA arrangement, two previously competing papers maintain separate news gathering, news reporting, and other editorial functions while

combining their advertising and circulation functions: a single entity sells subscriptions to both papers and sells advertising in both papers.”

Gentzkow et al. (2012) point out that newspaper JOAs are one of three instruments that policymakers have employed to increase ideological diversity; the other two being limits on joint ownership, and explicit subsidies.

Thus, JOAs are intended to permit a diversity of opinion and news in markets that would otherwise only be able to sustain a single newspaper, and publishers are given a special exemption from antitrust laws to allow them to combine their advertising and circulation operations.

What are the welfare effects of this policy? Current research on this issue is divided. Gentzkow et al. (2012) argue that allowing newspapers to form JOAs leads to a rise in both economic surplus as well as diversity. They show that allowing newspapers to collude on circulation prices alone leads to inefficient outcomes because the rise in newspaper profits does not offset the loss of surplus to consumers and advertisers, and also reduces the share of households who read diverse papers. By contrast, allowing papers to collude on advertising prices increases both economic welfare and diversity. This is because, in this situation, publishers slash circulation prices in order to increase readership and thereby profit in the advertising market in which they now have substantially greater market power. Even though publishers now have an incentive to differentiate from competitors, the effect is weak, and many more households end up reading

diverse papers. In a JOA, where publishers coordinate prices on both sides of the market, the advertising effect dominates.

Antonielli and Filistrucchi (2012), by contrast, question the rationale for JOAs. Similar to Gabszewicz et al. (2001 and 2002), they allow publishers to first choose their political position and then advertising and circulation prices. They analyze two forms of newspaper collusion: in the first, newspapers are allowed to jointly set prices on both sides of the market and also cooperate on their editorial lines. In the second, they can cooperate on prices but not on political position, which is exactly the situation with JOAs. The authors find that editorial lines converge much more in the latter situation, using reasoning similar to George (2007). Antonielli and Filistrucchi conclude, therefore, that the logic of JOAs is self-defeating. A possible explanation of their result is that they model newspaper readers as single-homers. By contrast, Gentzkow et al. (2012) argue that the multi-homing of readers is a critical component in their finding that newspaper JOAs raise overall welfare.

Romeo et al. (2003) focus exclusively on the advertising side of the market in their examination of the economic consequences of JOAs. They point out that, since JOAs are intended to allow once competing newspapers to combine their advertising operations, the effect should normally be to raise advertising prices to monopoly levels. However, they reason that, since newspapers in the JOA still need to publish separate editions and maintain the look and feel of a newspaper in each of its editions, the actual consequence may be that the two newspapers carry more advertising than a monopolist would. Moreover, since JOAs eventually end at some point, the assets of both newspapers will eventually be available for sale. Rather than force the weaker of

two newspapers in a JOA to disappear, it may be rational to have it remain a viable publication, in the hopes that a future investor will acquire it, and this also requires that this newspaper carry sufficient advertising. They estimate models of advertising rates for newspapers in 30 large cities during 1989-1999. They find evidence that JOAs act as constrained, rather than unconstrained, monopolists while setting ad rates. Thus they conclude: “The loss of economic competition inherent in the formation of a JOA may not have as serious a welfare effect as is sometimes assumed.”

Bucklin et al. (1989) predict in their study of newspaper predation (discussed in Section 2) that the monopolies in US central-city newspaper markets are inevitable. They conclude, therefore: “little can be said against joint operating agreements that preserve an independent editorial voice even if they do not preserve competition in advertising.” By contrast, Noam (2007) argues that JOAs have largely failed due to their focus on the wrong side of the market; he argues that newspapers have far greater economies of scale in news-gathering and on the content side more generally, than on the advertising side.

### 6.3 Vertical Price Restrictions

Issues concerning resale price maintenance occur periodically in the newspaper industry. Readers with an interest in antitrust economics will recall the case of *Albrecht vs. The Herald Co.*, decided in 1968 by the US Supreme Court. The Herald Co. was a newspaper firm owning a number of periodicals including the *Globe Democrat*, published daily in St. Louis. The company

hired carriers to deliver newspapers to subscribers, giving these carriers exclusive territories. The *Globe Democrat* printed its suggested retail price on the cover.<sup>9</sup>

One of the carriers hired by the *Globe* was Albrecht, which exploited its monopoly carrier status among the 1200 subscribers in its territory, to charge a higher cover price than the one suggested by the newspaper. The two firms ended up in court, and eventually the Supreme Court found in favor of Albrecht, ruling that the Herald's efforts to force a specific retail price amounted to price fixing in violation of the Sherman Act.

As economists would recognize, this situation was an excellent example of the double marginalization problem and there are strong arguments to support the Herald company's position. Indeed the Supreme Court reversed its stand on the issue in a 1997 court case.

Rosse (1980b) provides a vivid description of how restrictions against resale price maintenance are particularly harmful in the newspaper industry, showing how the usual efficiency concerns are magnified due to the advertising side of the industry being affected as well. More recently, Flath (2012) documents an interesting case of newspaper resale price maintenance in Japan. He shows that the vertical restrictions in this industry actually lead to a *floor* on prices, rather than a ceiling and argues that this supports collusive behavior by newspapers.

#### 6.4 Cross Ownership of Newspapers and Other Media

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<sup>9</sup> The material in this description is drawn from *Albrecht v. The Herald Co.*, 390 U.S. 150 (1968), and summarized in Pepall et al. (2008).

In 1975 the FCC implemented a ban on newspapers owning either radio or television stations in the same market, with some exceptions for those media firms that already engaged in such cross-ownership. The rationale for the ban was to prevent a single media company from dominating the communication of news and information, and to ensure a diversity of opinions.

Ferguson (1983) investigated some of the consequences of this regulation. He finds that when a daily newspaper owns either a radio or television station in the same local market, it tends to increase the newspaper's circulation. In the case of a newspaper owning a television station, it also reduces advertising rates in the newspaper.

The FCC in 2007 voted to modestly relax its 1975 ban on cross-ownership, a move that was seen to be helping the ailing newspaper industry (FCC, 2010). See (X-Sweeting) for a discussion of how this relates to the radio industry.

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## **7. Print Media and the Internet**

Publishers, and media firms more generally, have traditionally been wary of the rise of new media or new media outlets. British publishers feared that readers would substitute from buying newspapers to reading them in public libraries, radio broadcasting stations were afraid of competition from TV and, nowadays, publishers feel the threat from online media.

So far, the majority of research in this area has concerned itself with the potential for self-cannibalization, i.e. with the question of what launching a companion website does to the demand of the print version. In 2005, The New York Times cited an analyst at J.P. Morgan who claimed that “Newspapers are cannibalizing themselves”.<sup>10</sup> Germany’s leading news magazine “Der Spiegel”, published a skeptical article about the future of print media, ironically on its own companion website, with the suggestive title “Too much to die, too little to survive”. These fears trace back to the earlier days of the Internet. A Vice President of the media consultancy Jupiter Media Metrix is reported to have said: “Seize the day! Either you are going to cannibalize yourself or somebody else is going to cannibalize you.” Hickey (1997, p. 38).

At least in the beginning, companion websites tended to contain “shovelware” – content that had been directly copied from the print version to the online edition. The threat of the Internet therefore appeared to be quite imminent. It had, however, also been recognized that online companions entail the possibility of providing a bundle of goods rather than a single product, the print edition and additional complementary information on the online companion. Kaiser and Kongsted (2012) describe three main ways in which the online companion may influence print demand: (i) “awareness”, (ii) online subscription and (iii) additional service. Online companions generate awareness by offering a preview of the contents of the print edition or views of current and past articles. Consumers may thus sample the print edition, thereby raising print demand, an issue that has been theoretically studied by Peitz and Waelbroeck (2006) as well as by Halbheer et al. (2014), and empirically studied by Oberholzer-Gee and Strumpf (2004) for music downloads.

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<sup>10</sup> Seelye, K.Q. “Can papers end the free ride online?”, The New York Times March 14, 2005.

Similarly, print and online audiences may differ in their audience characteristics which implies that online companions may reach out to an audience different from that of the print version (Joukhadar 2004; Nicholson 2001). Online companions also offer online subscriptions, a feature that has been found to be important for the publishing industry (Barsh et al. 2001; Capell 2004). Most importantly perhaps is that online companions allow publishers to post complementary information. Studies by Barsh et al. (1999) and Silk et al. (1999) identify the relative positioning of the online companion compared to the print version as a key determinant of self-cannibalization. This relative positioning argument has been emphasized by econometric work by Deleersnyder et al. (2002), Pauwels and Dans (2001) as well as Simon and Kadiyali (2007). If the companion websites are just shovelware, substitution is more likely. By contrast, if the companion website offers additional service, it might well complement the print edition. Complementarity may be more likely for magazines than for newspapers since a magazine's online companion allows magazines to post current news, thereby enabling magazines to overcome magazine's disadvantage of infrequent periodicity.

To analyze whether the online companion is a substitute or complement to the print version and since traditional models of differentiated product demand only allow products to be substitutes, Gentzkow (2007) develops a more general structural approach where products can be either complements or substitutes and derives a novel identification strategy that is based on one good being free of charge, the online companion, while the other, the print version, is not. He uses consumer survey data on two regionally competing newspapers, the Washington Post and the



Washington Times to find that online companions and print versions are substitutes and that this results is not driven by unobserved consumer heterogeneity.

Other papers that use structural demand models to gauge the effects of online companion on print version sales include Filistrucchi (2005) and Kaiser (2006). Both papers assume that the launch of a website is uncorrelated with the respective print medium's unobserved characteristics and they also both use nested logit type demand models for circulation. Filistrucchi (2005) studies Italian national newspapers' launch of companion website and shows that print demand statistically and economically decrease once an online outlet channel is introduced. Kaiser (2006) also estimates overall negative effects but shows that these vary substantially across different consumer age groups and across time. He claims that time may have mattered since publishers may have become better at positioning the online companion.

George (2008) also underscores the importance of readership characteristics for the relationship between the Internet and the demand for US newspapers. She estimates reduced form equations for local internet penetration and per capita local newspaper circulation. Like George (2008) and Gentzkow (2007), Hong (2007) also uses consumer survey data to estimate the effect of the Internet on media demand. His dependent variable is household expenditures for different types of entertainment goods, among others newspapers and magazine. He estimates reduced-form equations and tries to identify causal effects by running difference-in-difference regressions, treating general growth in Internet penetration as exogenous.

Another strand of the literature uses time-series variation to explore the mapping between online and offline media. In earlier work, Deleersnyder et al. (2002) test for structural breaks (the introduction of the companion website) in monthly circulation time series of British and Dutch newspapers, observed between 1990 and 2001. They find that few newspapers experience a drop in circulation and advertising demand due to the existence of a companion website. The effects are, however, disperse across newspapers and economically fairly small. More recently, Kaiser and Kongsted (2012) run Granger causality tests on German magazine data. They find that online companions page visits decrease total sales. This result is driven by a decrease in kiosk sales which is not compensated by an increase in subscriptions. Like Kaiser (2006), they show that the relationship between the online companion and the printed magazine depends on reader characteristics.

Cho et al. (2014) use a cross-country dataset to study how Internet adoption affects print newspaper circulation and the survival of newspaper firms. Their data covers over 90 countries for the years 2000 to 2009, which encompasses the most rapid period of Internet adoption, but unfortunately ends just before the dramatic slowdown in newspaper circulation following the financial crisis. Cho et al. show that Internet adoption directly contributes to newspaper shutdowns in a number of countries, although the Internet appears to have little effect on the net circulation of those firms that survive.

While existing research has primarily concerned itself with the effect of the Internet on print demand, less is known about the reverse effect, which seems surprising given the rapid gain in the importance of online advertising. Kaiser and Kongsted (2012) do not find any evidence that

print circulation affects page visits, which contrasts with an earlier study of a panel of twelve Spanish newspapers by Pauwels and Dans (2001) which finds evidence that print circulation increases website visits.

Economic research has recently started to becoming more interested in the effect the Internet has on advertising demand and ad rates for print media.<sup>11</sup> Zentner (2012) uses data on 87 countries for eleven years to document a negative relationship between Internet penetration and advertising spending in traditional media for newspapers, magazines and TV. Chandra and Kaiser (2014) study the effect that online companions and Internet use by readers has on the value of targeted advertising for German consumer magazines. They find a complementarity between the offline and online channels: the value of targeting homogenous consumer groups increases both with the Internet use of readers and with the existence of a companion website. They hypothesize that this result is driven by multi-homing consumers who enhance the value of targeted advertising. While they do find evidence that online channels increase the value of targeting, they also show that the overall effect of online companions and Internet use by readers on advertising rates is negative.

One fundamental problem inherent in almost all of the empirical studies of offline/online competition (or complementarity) is identification. Most studies assume the launch of a companion website to be an exogenous event (Filistrucchi 2005; George 2008; Gentzkow 2007; Kaiser 2006; Kaiser and Kongsted 2012) which clearly is questionable. The literature has so far been lacking good natural or quasi-experiments such as the one used by Goldfarb and Tucker

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<sup>11</sup> Lambert and Pregibon (2008), Joo et al. (2012) and Goldfarb and Tucker (2011) study the relationship between offline and online advertising for media markets other than print.

(2011) who use an advertising ban to tease out causal effects, or denial of service attacks as used by Goldfarb (2006) who asks whether consumers return to online channels after such an attack.

Another relevant issue from a managerial point of view is the setting up of paywalls for access to online content. US websites used to be hesitant to charge access fees in order to generate visits and thus to sell online advertising (Barsh et al. 2001; Deleersnyder et al. 2002). There has, however, been a tendency towards charging, but results had not been encouraging until late (Hickey 1997; Robins 2001). In 2011, the New York Times, however, re-opened a paywall for its online content and several other international quality newspapers followed suit.<sup>12</sup> Chiou and Tucker (2013) provide descriptive evidence for the effects of a paywall introduction on website visits using data from an experiment conducted by a publisher, differentiating their findings by reader demographics. Studies that also look into the effect of paywalls on offline reader demand as well as on advertising are lacking so far.

Print media markets have hitherto been considered as a prototypical two-sided market. Given the growing importance of online companions for both readers and advertisers, future research may want to concern itself with the resulting four-sided market and the implication that such an interrelationship has on pricing structures.

News aggregators that consolidate information from different websites into a single newsfeed of information have only recently become the subject of empirical research. Using a data set that tracks users' browsing behavior, Athey and Mobius (2012) show that a user's adoption of the

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<sup>12</sup> McAth, R. "Two years in: Reflections on the New York Times Paywall", journalism.co.uk, 2013.

Google News localization feature is associated with an increase in local news consumption. George and Hogendorn (2012) use very similar data to demonstrate that the adoption of geo-targeted news reduces the access cost of local news but does not seem to have economically significant effects on local publishers. In a similar context, George and Peukert (2013) use data on monthly local and non-local visits to news outlets online to demonstrate a positive mapping between group population size in local markets and the consumption of national media over the Internet. In addition, aggregated news and news collected from social media sources – so-called “robot journalism” – may substitute possibly censored or biased traditional media as in the context of the Arab spring of 2010/2011, an issue that has not been systematically studied so far.

Finally, one may argue that the threat of online cannibalization is more imminent for newspapers than for magazines since the latter cover longer in-depth articles while the former feature current news which can as well be called up on the Internet. Indeed, studies that analyze newspapers tend to find negative effects of online companions on sales (Filistrucchi 2005, George 2008) while there is more heterogeneity in the results for magazines (Deleersnyder et al. 2002; Kaiser 2006, Kaiser and Kongsted 2012, Simon and Kadiyali 2007). A systematic analysis of potential differences is yet to be compiled, however.

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## **8. Thoughts for Future Research and Conclusions**

Throughout this chapter we have highlighted areas where further research would be valuable. We now summarize some of these open research questions, and then offer our thoughts on the future of print media.

Most of the fertile research areas for Economists interested in newspapers and magazines lie in how these media tackle the advent of the Internet. A basic problem in studies of the competition between online and offline channels is identification. Previous studies have generally assumed that the launch of an online edition is exogenous, which is clearly less than ideal. A useful study would carefully estimate the causal effect of a newspaper or magazine's online edition on the sales and advertising revenues of the print edition. In a similar vein, studies that examine the effect of online paywalls on offline reader demand as well as on advertising are lacking so far, as are studies of news aggregators and robot journalism.

On this note, we ask whether existing models of two-sided markets will be sufficient to analyze the media properties of the future which are likely to have hybrid structures with significant numbers of both online and offline readers; indeed, there already exist examples such as the New York Times which now enjoys significant revenues from both digital and print audiences, as well as from advertisers in both forms, but must grapple with cannibalization and optimal pricing. Empirical researchers may have to devise four-sided models of media, and also wrestle with issues of multi-homing which are often intractable.

We have discussed a large literature on whether readers of print media view advertising positively or negatively, but the empirical results are frustratingly inconclusive. It is surprising

that the answer to this question is not yet known, given that economists have acknowledged the importance of feedback effects in two-sided markets; positive or negative feedback effects from advertising have radically different predictions for optimal pricing in media markets. We previously alluded to the possibility that readers may view advertisements differently in newspapers versus magazines, given that the latter targets readers by content instead of geography and is therefore perhaps more likely to have readers that derive a positive value from reading advertisements relative to them. Research in this area would be an important addition to the literature.

Industry observers have long pointed out that online advertising revenues are tiny compared with revenues in print media, even when normalized by the number of readers. This appears to be a puzzle, although some explanations have been offered. Chief among them are that online readers spend less time on a news website than they do with a printed paper, and that switching costs online are extremely low. Moreover, a large portion of the surplus in online advertising may be being appropriated by firms that provide the technology to track readers across websites, or by Google, which enjoys immense market power in the online advertising market. Nevertheless, there has not yet been any systematic academic study of this issue. Research into this area will be of enormous importance, given that many newspapers are now pinning their hopes of survival on generating a large and loyal online readership, but this may be futile if advertising revenues remain low.

Research has long established that newspapers are an important driver of voter turnout and civic participation, as we discussed in Section 2. Moreover, Gentzkow (2006) showed that voting

declined as newspapers were supplanted by television, since the latter did not have the same effect on galvanizing citizens to participate in the electoral process. An important question, therefore, is whether the same will be true with the Internet as readers consume online content. One recent paper suggesting that this may be indeed the case is Falck et al. (2014).

Within the realm of traditional print media two questions stand out to us. First, there is little research on free print newspapers, perhaps because the lack of sales data makes credible circulation figures difficult to obtain. Nevertheless, such newspapers are extremely important in a number of large cities, particularly among users of public transportation who are excellent captive audiences for advertisers. Moreover, the economics of free print newspapers is similar to that of online media that do not impose a paywall, which applies to a large number of news sources. Understanding the impact of free newspapers on market structure, and examining whether the advertising market plays out differently in such media, is of direct economic interest and also provides a useful benchmark with which to predict the evolution of online news competition.

Throughout this chapter, we have focused on the US newspaper industry, with a few exceptions to cover print media in countries Canada, the UK and Germany. As we have emphasized, this is because the existing literature is so heavily focused on the US — perhaps a common problem in Industrial Organization. Nevertheless, there is huge potential for research into the media industries in other parts of the world, particularly in developing countries where newspapers continue to thrive. Rising incomes and education levels have led to a flourishing newspaper market in countries such as India. A fruitful area of research would be a comparative analysis of



print media across countries, a short example of which we provided in Table 1. To our knowledge, Zentner (2012) and Cho et al. (2014) are among the only studies along these lines. Such a comparative analysis is often useful for identifying interesting phenomena in certain countries, such as the remarkable circulation figures in Japan that we described in Section 3.1. In general, the decline of newspaper markets in North America should lead to a natural interest in how this industry operates in other countries, where similar declines are not yet apparent.

We now offer some brief concluding thoughts on this industry. Newspapers and magazines are easily the oldest of the major media that exist today. Print media have created enormous value since their inception, even as they have evolved considerably from their early days. Policymakers have long recognized that newspapers have a unique role in the civic discourse of a country, and have important consequences for informing the citizenry, encouraging electoral participation and providing a check on powerful forces in government and business.

Yet, today, print media are struggling. Newspapers, in particular, have faced devastating losses over the past two decades, even as magazines retain a stable position for now. Given long-term trends, both in the sales of print media, and in the advent of digital media, it is hard to see how long printed newspapers will continue to exist, with the exception of certain well-established brands.

It is possible, though by no means assured, that newspapers and magazines will transition to digital editions, and continue operating in a new physical form for the foreseeable future. Indeed, for a number of periodicals, the online edition now provides the only positive note, being one of

the few areas on which readers and revenues steadily increase. After faltering in the early years, a number of newspapers have now launched sophisticated paywalls in conjunction with well-executed digital strategies, that actually have readers willing to pay for content. And in fact, the advent of the Internet has clearly helped some newspapers — well-known media names such as the Wall Street Journal, The New York Times and the Daily Mail have secured commanding positions in the flow of online news and as voices of authority in the online mélange of blogs, news aggregators and social media.

At the same time, the simple fact is that online advertising revenues are only a fraction of what the print equivalent used to be. Even the surviving news outlets operate with ever-shrinking budgets and staffs, and occasionally have to sacrifice news bureaus in major cities, or the luxury of investigative journalism. Therefore, as we have mentioned earlier, it remains to be seen whether online newspapers can continue to command the same respect and reputation for providing balanced, reasoned and well-researched reporting that their print counterparts once did.

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