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# **Is the Internet Bad News? The Online News Era and the Market for High-Quality News**

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# Is the Internet Bad News? The Online News Era and the Market for High-Quality News

Paul Frijters\* and Malathi Velamuri†

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## Abstract

We review and model the impact of the internet on the production and uptake of high-quality news. Our review of trends in the market for news suggests 3 stylized facts: i) particular quality news markets are dominated by merely a few providers, ii) demand for quality news appears stable, but provision of news has become specialized; mainstream news is decoupled from quality news, and iii) the dominant business model of internet news mirrors that of radio, television, and newspapers in that costs of news production are recouped via advertising. We build a stylized model that rationalizes these facts. Our model captures three conflicting effects: (1) economies of scale in the production of news lead to monopolies on particular markets, (2) easy access to information on the internet makes it cheaper to provide high-quality news and to disseminate it via the web, which increases the production of such news; and (3) the existence of bloggers and news aggregators who recycle the stories of news-providers reduces the effective property rights of high-quality news producers, thus forcing the business model of the internet to be advertising-based. For the most likely cases, our model would imply that the internet does not constitute bad news for the provision and uptake of quality news.

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“All the bloggers who exist to comment on us, the Googles and Yahoo!s ... who rely on what we cover in the Middle East, who rely on what we write about in California, and the nation, and Washington; they wouldn’t exist if we didn’t. Our economic model is, obviously, threatened. But if we disappeared tomorrow, they might have to reinvent something that looks like us.” Dean Baquet, Editor, Los Angeles Times, quoted in “*What you should know about the Newspaper Industry*”, by Jonathan Jones, Feb 27, 2007.

## 1 Introduction

The production and dissemination of ‘news’ has changed dramatically in the developed world since the mid-twentieth century. New media platforms have emerged, there have been significant regulatory changes and news corporations have conglomerated. Popular opinion holds that this rapid transformation of the industry, by facilitating concentration of ownership, has led to a deterioration in the quality of news offered by the mainstream media and reduced the diversity of opinions expressed.<sup>1</sup> Opinion polls indicate a falling public trust in the news media.<sup>2</sup> Table 1 captures this trend; over time, there has been a gradual erosion in the share of news audience that views mainstream news outlets favorably, with local TV news, network TV news and newspapers coming in for the harshest criticism. Hume (1996) contends that while public confidence in most institutions has diminished in the United States, journalism has fared the worst.

In the current digital era, news has gone online and comes in various forms simultaneously including television, radio, podcasts, blogs etc., and we are witnessing the emergence of a world market for news. Since the late 1990s, significant increases in broadband penetration in households has allowed a disenchanted public to move away from mainstream news sources and increasingly rely on the internet as the main source of news. News suppliers have followed suit, taking their content online and making it freely available to the public.<sup>3</sup> Ironically, news suppliers point to the online news model as a culprit for falling standards in the news industry.

Our starting quote above is by a media insider who clearly believes that online commentators (bloggers) and social networking sites effectively steal the news gathered by professional newsgatherers and that this free-riding affects their long-term prospects for survival. Many commenta-

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<sup>1</sup>See, for instance, McChesney (1999), Shaw (2001), Hume (1996) and Shah (2009)

<sup>2</sup>See the Pew Report (2007), “Views of Press Values and Performance: 1985-2007”, and Hume (1996).

<sup>3</sup>A few outlets charge customers for viewing their content but the majority now allow free access.

tors share this view and assert that these activities spell the end of serious news gathering, as it is now cheaper to recycle someone else's news than generate original content. Another complaint by insiders is that the internet, and other new technologies, have reduced news quality by increasing the job scope of journalists:

“...they say you've not only got to write the story, you've got to do the audio version, the video version, you've got to do vodcasts and podcasts, that all takes more time as well and divides your concentration. So that the quality of the work is going down even though the amount and the variation of the product is increasing.” (Nick Davies, Journalist and author, commenting on current journalistic standards, in an interview for the *7.30 Report* for the Australian Broadcasting Corporation, 27/08/2008)

Despite the clamor about falling standards in the media, there has been no systematic investigation of the claim that the internet and related technologies have affected the provision of high-quality news. This paper seeks to examine that claim. Specifically, we investigate whether the internet era has reduced the demand and/or supply of high-quality news. We examine longer-term trends in the media industry preceding the online news era to distinguish secular trends from developments that can be attributed to the internet and related technologies. Distilling the historical information into a set of stylized facts, we model the impact of the internet on the uptake of high-quality news.<sup>4</sup>

Our simple model captures three conflicting effects of the internet. The first is that easy access to information on the internet makes it cheaper to provide high-quality news and to disseminate it via the web, which increases the production of such news. The second is that the existence of bloggers and news aggregators who recycle the stories of news-providers reduces the effective property rights of the high-quality news producers, thus reducing their incentives to invest in such news production. The third is that the internet has reduced the search costs of finding customers who generate the advertising revenue. Our model shows the conditions under which these combined effects lead to a long-term reduction or expansion in the provision of quality news. In isolation of the third effect, the second effect dominates the first, in the long-run: the production of high-quality news, whose costs do not go down at the same rate as the cost of information exchange on

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<sup>4</sup>While perceptions of news quality can be fairly subjective and difficult to define, for our purposes, high-quality news refers to original reporting involving the collection and verification of facts, and a clear and concise analysis of the same. Typically, the generation of high-quality news involves investments of time and money.

the internet, only survives in large markets. However, the third effect makes any high-quality news provision that attracts a minimum level of customers commercially viable, even in the absence of property rights.

There is a small literature on the impact of the internet on media bias, on product variety and product positioning, and on the composition of news consumers for various sources of news, all of which is referenced below. To our knowledge, this paper is the first to examine the advent of the internet news era on the provision and uptake of high-quality news. This is an issue of considerable importance, as an independent and critical media industry is a cornerstone of participatory democracy. As such, any development that affects the credibility of this industry has serious implications for the preservation of an informed citizenry.

Section 2 provides a brief description of the structure of the U.S. media industry and of major developments in the industry since the mid-twentieth century; Section 3 presents a concise literature review on media bias and the trends in news quality over time, and synthesizes the findings into a list of stylized facts; Section 4 describes the simple theoretical model; Section 5 concludes.

## **2 Background - Media Industry in the U.S. and media concentration**

Newspapers and radio dominated the news industry for the first half of the twentieth century. Robinson (2007) classifies the second half of the twentieth century in terms of the dominant news medium of the decade: the era of network news began in the 1960s with the advent of television and dominated the news scene up until the 1980s; the 1990s was the decade of Cable news characterized by 24-hour news broadcasts, dominated largely by CNN; and the current decade marks the era of digital or online news, facilitated by the world wide web.

Successive waves of innovation provided more types of news products to consumers, with the long-term trend seeing technologies that reduced the dissemination costs of news, thus allowing for larger audiences to be served. In addition to changing technologies and institutions, the regulatory environment pushed the industry towards consolidation of news sources, challenging the viability of smaller media players.<sup>5</sup>

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<sup>5</sup>See Neiva (1995) for an account of the technological and institutional changes that pushed the U.S. newspaper industry towards consolidation; Berry and Waldfogel (1996) for regulatory changes affecting radio; Einstein (2004) and McEwen (2007) for regulatory changes in television; Gomery (2002) on regulation banning newspaper-broadcast

Economists studying the news market have pointed out that news provision is a textbook case of a natural monopoly, particularly for print media. News itself is a public good in that it can be copied without dilution once produced and it is hard to exclude consumers from it. News dissemination is also subject to increasing returns to scale, because of scale economies in bulk printing, and the classic properties of distribution networks. Early papers by Reddaway (1963) and Rosse (1967, 1970) and by Dertouzos and Trautman (1990) found strong evidence of the existence of scale economies in the newspaper industry.<sup>6</sup> These characteristics imply that news provision will tend towards monopolies who have to recoup costs indirectly with advertising rather than circulation. The print media industry therefore invariably charges low cover prices for its products. Table 2 presents revenue arising from circulation and advertising for the newspaper industry in the U.S. over time. The contribution of advertising towards revenue was over two times that of circulation till the 1980s, and has been increasing steadily since then.

Radio relied almost exclusively on subsidies and advertising since it was basically impossible to make people pay directly for radio reception. In the early days of television, advertisers bore the full cost of broadcasting, allowing consumers costless access to news throughout the day. Later on, with the advent of cable, it became possible for some specialized news channels to charge for news directly though advertising remained the dominant source of revenue for television right up to this day. As with radio, this business model relied on large markets and is vulnerable to regulations preventing consolidation of news markets.

The traditional reliance on advertising in all the news media, but particularly in radio and television, means that the quote we started this paper with is slightly misleading: historically, the viability of the news industry has not relied on making people pay for actual news, but rather on persuading consumers to consume their news from the original news provider, allowing the provider to recoup costs via advertising. In principle, it is hard to see the fundamental difference that the internet has made to this reality: as long as providers can package their news and persuade consumers to get their news from the original source, they can still reap the advertising revenue that goes with it.

From the late 1990s until recently, the economic model adopted by the online media industry did indeed rely almost solely on advertising revenue. Advertisers supported the migration of news content online by moving their business online as well. However, in contrast to the traditional

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cross-ownership; and “4 advances that set News Back” (<http://thefutureofnews.com/vision-future/advances/>)

<sup>6</sup>Kaiser and Wright (2006) provide evidence of scale economies in the magazine industry in Germany.

model, the principal beneficiaries of online advertising revenue have not been the content-creators but the web portals, search engines and news aggregators that relied on content-creators for news (Isaacson, 2009). From an economic point of view, these search engines and news aggregators are intermediaries that skim off the rents created by news provision.

Table 3 presents the shift in advertising shares between 2006 and 2007 at 17 major media companies, including Google, Yahoo, Microsoft, Time Warner, Disney, Viacom, CBS and Clear Channel. These companies span the online, TV, print, radio and outdoor advertising sectors. The table reveals that the combined advertising revenue of these 17 companies grew by 6% between the second quarters and 8% between the third quarters of 2006-'07. Offline revenue grew by less than 1% over the same periods, even after the inclusion of affiliate fees and global revenue at CBS, Viacom and News Corp. Online advertising revenue contributed 26% and 30% to this growth in the second and third quarters respectively. Google had the major share of online advertising revenue, growing by 43% and 46% respectively over the two quarters of 2006-'07. One would expect the scope for such rent-skimming to reduce over time as consumers become more discerning in their search for news, and producers come up with strategies to attract consumers directly to their websites.<sup>7</sup> Nevertheless, the downturn in the advertising industry in general, and internet advertising in particular since 2008, has exposed the vulnerability of this model to changes in economic conditions (McIntyre, 2009).

### 3 News Quality in recent times

Currently, five major companies dominate most of the media (Bagdikian, 2004). These companies are entertainment conglomerates that have vertically integrated across various industries such as distribution networks, toys and clothing manufacture and retailing, allowing them to increase their market power by integrating marketing efforts across different sectors of the media (McChesney, 1999). Many industry observers contend that this unchecked market power has eroded the quality of news, increased partisanship and imposed constraints on the range of issues covered by the Press

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<sup>7</sup>“If visitors come from Google to stories deep in the paper and then leave, Google gets the dollars and we get only cents, but if we can bring them in through the front page we can charge  $\hat{U}$ 19,000 [\$25,000] for a 24-hour banner ad.” (Sverre Munck, executive vice-president of international business for *Schibsted*, a Norwegian newspaper firm, quoted in the *Economist*, 2006)

as well as diversity of opinions expressed.<sup>8</sup>

In this section, we examine trends in the demand and supply of quality news and ask what the evidence is on the following measures of news quality: bias in reporting, breadth of the market (diversity of news), and the composition of ‘hard’ versus ‘soft’ news.<sup>9</sup>

### 3.1 The demand and supply of quality news

The Pew research center’s News interest indices (NII) measure the extent of the American public’s interest in various news events.<sup>10</sup> These indices suggest that audience interest in various types of news has remained stable since the 1980s, despite the changing composition of news offered by different media platforms. The trends in Figure 1 support this view. While interest in news related to money has trended upwards, there is no other meaningful trend. Importantly, there is no shift in audience tastes towards less serious topics; interest in tabloid news, for instance, has remained low and stable over time. However, there is evidence of sizable discrepancies between the media industry’s coverage of news events and consumer preferences. Figure 2 highlights the ‘newshole’ for various events, the gap between the public’s interest in a news item and the media’s coverage of that event. The figure indicates that what the news media was delivering, did not necessarily accord with audience preferences in terms of coverage. One explanation offered for this mismatch between demand and supply is that the news industry’s cost-cutting measures have eroded product quality and driven away their core audiences, those individuals who have traditionally been regular followers of news (Patterson, 2001).

According to the Newspaper Association of America, the number of people employed in the newspaper industry fell by 18% between 1990 and 2004. High-quality international news coverage has been a big casualty of these staff cutbacks (Carroll, 2007 and Miller, 2008), as revealed by the following stark statistic: in 2000, two-thirds of the 282 foreign correspondents working abroad for U.S. dailies as either full-time staff or on exclusive contracts were employed by only four daily

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<sup>8</sup>“One cannot expect Disney, for example, to talk too much about sweatshop labor when it is accused of being involved in such things itself.” (Shah, 2009)

<sup>9</sup>Patterson (2001) defines ‘hard’ news as information that is important to citizens’ ability to understand and respond to the world of public affairs. Examples include breaking events involving top leaders, major issues, or significant disruptions in the routines of daily life, such as an earthquake or airline disaster. ‘Soft’ news or tabloid news, on the other hand, is news unrelated to public affairs or policy, and is more sensational and/or more personality or celebrity-oriented.

<sup>10</sup>These indices are based on surveys conducted by the Pew Research Center for the People and the Press. See <http://people-press.org/>



newspapers - *Wall Street Journal*, *Washington Post*, *New York times* and *Los Angeles times*. The remainder of over 1,400 dailies had less than a 100 foreign correspondents among them (Shaw, 2001). Most newspapers now rely on either recycled news from Reuters, the Associated Press (AP) or *New York Times* wire services, or on mobile journalists who fly into various hot spots to report on the latest crisis. Such reporting invariably lacks cultural perspective and in-depth analysis (Fleeson, 2003). News outlets that have invested in producing high quality news, have enjoyed recognition by their peers as well as high demand.

Table 4 reveals that the four dailies with the largest number of foreign correspondents between themselves won the coveted Pulitzer prize for international reporting in 20 of the 29 years between 1980-2008, signalling high journalistic standards. Since the late 1990s, these dailies have effectively monopolized the Pulitzer prize for this category. Moreover, as Table 5 reports, they have consistently featured among the top ten dailies in the U.S. in terms of circulation. All the above evidence suggests that the demand for high-quality news has remained strong.

Table 6 presents a different and more direct measure of quality - seven readability indices for three newspapers - the *New York Times*, *Christian Science Monitor* and the *Washington Post* - over time. These indices are based on formulae that have been developed to assess the quality of written text, in terms of the ease of comprehension for readers. Each uses a different formula for predicting readability but essentially, they all look at the lengths of words and sentences, which is obviously not a critique-free means of measuring quality but does measure the degree to which the text taxes the reader.<sup>11</sup> To assess readability of various newspaper articles, we picked one article from a March issue in every decade from the online archives of the respective newspaper websites. To the extent possible, we restricted our attention to editorial articles, since these are most reflective of the writing style followed by the newspapers.

The different measures of readability in Table 6 are generally consistent. They suggest that while the *Washington Post* appears to adopt a more complex writing style relative to the other two dailies, the trends in each of the dailies have remained quite stable over time; there is no evidence of any ‘dumbing down’ in the writing style. Clearly, these measures are quite limited; they do not capture any deeper characteristics of writing such as coherence of argument or quality of analysis.

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<sup>11</sup>Some, like the Flesch-Kincaid measure and the Flesch reading ease formula, are based on the number of syllables per word and the average sentence length, while others like the ARI and the Coleman-Liau, are based on the number of characters per word and sentence length. See <http://www.readability.info/info.shtml> for the formulae used in computing these indices. With the exception of the Flesch index, all other measures report the output in terms of a U.S. grade-school level required to comprehend the text.

Nevertheless, they are objective measures of the surface readability of the representative articles. The indices in Table 6 suggest that in terms of various readability metrics, these dailies have maintained their standards over time.

Trends in circulation of news magazines also suggest that audiences have gravitated towards outlets specialized in particular types of news or analysis. The *Economist* magazine, for instance, specializes in in-depth foreign economic news from all corners of the globe. At a time when news magazines like *Time* and *Newsweek* were moving away from hard news<sup>12</sup>, readership of the *Economist* magazine increased dramatically; since 1993, the magazine has more than doubled its readership in the U.S., which now accounts for over half of its world-wide sales (Langfitt, 2006). This dramatic increase in circulation is further evidence that there is a sizeable audience for high-quality news in the U.S. Other specialized magazines such as the *New Yorker* and the *Week* have all seen their circulation rise substantially during the last 20 years.<sup>13</sup> Figure 3 attests to this rising trend, while Figure 4 traces the gradual erosion in readership among the magazines that were traditionally considered the ‘big three’ - *Newsweek*, *Time* and *U.S. News*; all three face circulation numbers that are below their respective 1988 levels.

These trends suggest that it is not so much the case that high-quality news is no longer produced or disseminated, but rather that it has become a truly specialized commodity; with the mainstream media implementing staff cut-backs, eschewing in-house reporting and relying more and more on syndicated news, consumers interested in original, high-quality reporting have gravitated towards specialist providers of such news. As a result, we are now witnessing a more segmented market for news.

### 3.2 Ownership concentration and product variety

There is evidence that ownership concentration does not necessarily constrain product variety. Spence and Owen (1977) theoretically show that under advertiser-supported broadcasting, competition can lead markets to fail to meet the demands of various demographic groups who are considered marginal simply because no single outlet can dominate a sufficient number of smaller markets to make provision worthwhile. In their model, outlets specialize on the individually prof-

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<sup>12</sup>See Nisbet, 2001

<sup>13</sup>The *National Geographic* magazine, specializing in geography, culture and environmental issues, has similarly retained its high standards for quality for well over a century and is currently published in over 31 languages, with a combined circulation of over 9 million annually (<http://www.answers.com/topic/national-geographic-society>)

itable niche markets, but no longer service a whole range of customers.<sup>14</sup> In their model, more concentrated ownership extract more rents out of consumers, which leads to more diversity. The empirical evidence, though limited, seems to support this prediction.

A number of papers specifically examine the impact of ownership concentration in the media industry on product variety. Berry and Waldfogel (2001) found that the spate of consolidation in broadcasting following the Telecommunication Act of 1996 reduced market entry but increased the variety of formats broadcast, relative to the number of radio stations. George (2007) investigated the effect of concentration on product position, product variety, and readership in markets for daily newspapers in the U.S. between 1995 and 2005. She examined the distribution of reporters employed at over 750 daily newspapers across news topics, to construct market-level measures of product differentiation and variety. She found an increase in product differentiation and content variety over this period, and no impact on readership. Thus, in contrast to popular wisdom, the empirical evidence indicates increased variety from ownership concentration.

### 3.3 Media bias and soft news

Evidence on media bias has been reported on various issues such as U.S. diplomacy in the Middle East (Sarloff, 2003; Peterson et al., 2003); ownership regulation by the FCC (Cooper *et.al.*, 2001); the GE company dictating that its subsidiary, NBC, should not cover GE's pollution of the Hudson River with toxic chemicals; and the television networks' failure to cover Congress' decision to grant broadcasters free additional spectrum for digital television (Cooper *et.al.*, 2001). Yet, there is no unequivocal evidence, either theoretical or empirical, that this bias is a consequence of ownership concentration in the media industry or that things have gotten worse over time. All one can say is that media bias exists and that economic interests are in part responsible for its existence.

What can be said with greater certainty is that news is specific to its audience. Figure 5, taken from Gentzkow and Shapiro (2006), thus reveals a polarized market for news; in 2002, a majority of Fox News channel's audience was Republican while National Public Radio (NPR) attracted a majority of democrats. Groseclose and Milyo (2005) empirically examined the degree to which the words used by media providers coincides with words used by 'liberal politicians', and on the basis of a high degree of similarity conclude that there is a strong liberal slant in the media. Whilst this is not necessarily evidence of bias either way (the 'truth' may, after all, not lie in the middle of the

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<sup>14</sup>Stromberg (2002) cites the case of the American television show 'Gunsmoke' that was canceled despite high ratings, because the show's audience was considered too old and too rural to generate much revenue for advertisers.

political spectrum at all), it does at least re-affirm that news media markets are segmented.

Mullainathan and Schleifer (2005) study media bias in the sense of deliberately misinforming people; in their model, newspapers compete for readers by tilting their news stories to conform to their readers' prior beliefs. They show that on issues where reader beliefs diverge, newspapers polarize the market by slanting toward extreme positions. In the aggregate, a reader can get an unbiased perspective when she has access to all news sources. If we interpret media bias as bias at the level of the individual provider, their model shows that bias goes up with heterogeneity of prior beliefs and the degree of competition between providers, whilst aggregate bias (the bias that someone who observes all the media can detect) goes down in exactly the same situation.

Gentzkow and Shapiro's (2006) model is similar in spirit; they build a model of media bias where firms skew their reports towards customers' prior beliefs in order to build a reputation for quality. In their model, media bias arises in equilibrium even when consumers prefer to learn the truth and are not simply demanding reports that conform to their beliefs. What sustains equilibria with misinformed consumers is the fact that the actual truth does not ever truly get revealed with certainty, implying that a set of wrong beliefs may, even in equilibrium, be accepted as the truth which in turn gives media providers an incentive to look at what their customers want to believe as well as their actual signal of the underlying truth. Their model also implies a powerful role for market competition in reducing aggregate bias in that more of the underlying signal gets revealed. Consistent with these predictions, they find evidence that newspapers operating in different geographic markets tend to have a political slant that matches that of the readers in that market. Interestingly, they note that a number of newspapers operating in different geographic and political markets are owned by the same company, but that owners had a negligible influence on slant while readers' political beliefs had a significant influence. Hence the same owners could run different slants in different markets, implying that bias at the level of the individual provider is demand-driven and aided by competition.

Is there any indication that internet has aided consumers who wish to be exposed to various sides of a story in order to be more fully informed? There is, albeit indirect. Pew (2006b) finds that the number of news sources visited by broadband users increases with age; broadband users under 36 consume a little over 2 news sources on average, those in the 36-50 age group consume about 2.5 while those above 51 consume 3 news sources on a typical day. Overall, 25% of broadband users visit at least 4 news sources on a typical day. Whilst this of course does not mean that all internet users are in the quest for the 'truth', this high level of 'news shopping' does at least indicate that

the internet can facilitate those looking for several points of view.

A different measure of news quality is the composition of hard versus soft news on offer. Soft news is typically cheaper to produce. Thus several high-profile news organizations have adopted an editorial direction towards a more tabloid style in the last 10 years, as a means of lowering their costs.<sup>15</sup> Patterson (2001) documents a discernible shift away from traditional, hard news towards softer content among different media platforms between 1980 and 1999. According to his analysis, news stories with moderate to high levels of sensationalism have increased from 25% to 40%, news stories with a human interest element have increased from 11% to 26%, and news stories relating to crime and disasters have increased from 8% to over 13% over this period. However, as mentioned earlier (see Figure 1), data from opinion polls indicates no evidence of a concomitant shift in the public's preferences towards soft news. The review above suggests that what has really gone on is specialization in high-quality news provision.

### 3.4 The direct effects of the internet

The emergence of the world wide web in the mid-1990s signalled a new era in publishing and redefined the traditional newspaper audience. In 2008, 55% of all adult Americans had a high-speed internet connection at home (Pew, 2008). As a consequence, the internet has drawn news audience away from mainstream media sources. Gentzkow (2007) provides some evidence in support of this; he examined whether the advent of online news has complemented or crowded out print newspapers. Using microdata from the Washington DC market and carefully controlling for unobserved consumer heterogeneity, he found that on average, online news reduces readership of print news by 27,000 per day and costs firms US\$ 5.5 million per year in lost print profits.<sup>16</sup> He also claims that online news has substantially increased consumer welfare.

George (2008) examines how online news has changed the composition of news consumers. Using newspaper circulation data at the zip code level and internet penetration at the market-level, she found that younger, more educated and urban individuals are disproportionately substituting away from daily newspapers towards online news. She also found some evidence suggesting that newspapers have altered their content in response to the changed composition of their audience, placing greater emphasis on issues relating to minorities, education, crime and investigative reporting. Thus, a section of the print media has adapted by repositioning itself and changing content to

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<sup>15</sup>See Miller (2008), <http://www.pri.org/global-news.html>

<sup>16</sup>Filistrucchi (2005) provides similar evidence for Italy.

appeal to its new audience profile.

A large section of the print and visual media has responded by embracing the Web, taking its content online and integrating audio and video features on the internet sites. Earlier, newspapers reserved their best journalists for the print versions, now they are contributing to their online versions, as the second quote in the introduction testified to. Table 7 records the steep increase in visitor traffic to online newspaper websites since 2006, and Table 8 presents revenues of newspapers from their online operations in 2006, classified by circulation.

The circulation numbers in Table 7 indicate a substantial growth in online news audience and the cross-tabulations in Table 8 suggest that advertising-based internet news-provision has been a viable business model. Recent examples of news outlets switching to online news include, in October 2008, the century-old *Christian Science Monitor* which decided to abandon its daily print edition, and move to an exclusively online edition in order to reduce its costs. Significantly, the paper announced that such a move would allow it to keep its eight foreign bureaus open. In March 2009, the Seattle-based daily *Post-Intelligencer*, founded in 1863 and currently owned by the Hearst Corporation, also announced its decision to abandon its print edition to move online, in a bid to bring down its operating losses. Thus, newspapers are indeed converting from hard-copies to internet-based outlets.

Another impact of broadband expansion, however, has been on the state of journalism itself. Facilitated by the development of interactive tools like Live Journal and blogger.com, it has created a community of bloggers who perform three functions: (i) express opinions on various topics and invite comment; some newspapers are bringing popular blogs into their domain and generating content through these channels. For example, the *New York Times* online edition hosts the 'Freakonomics' blog. This would seem a clear move to retain the advertising revenue generated by providing a bundle of news; (ii) conflate information from various original sources including newspapers; Web-based news aggregators like Google news and My Yahoo facilitate this activity, as do user-driven news sites like Reddit and Digg that generate their own content by posting those news items that online viewers find most interesting; and (iii) bring key information to public light. The third function has made blogging a powerful medium for the dissemination of news and created a corps of self-appointed 'citizen journalists'.<sup>17</sup> Supporters of this new form of participatory jour-

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<sup>17</sup>A number of scandals that caused prominent public figures to resign their official positions - for example, Trent Lott as the U.S. Senate majority leader in 2002, and Dan Rather as a television journalist on CBS in 2005 - were initiated by blogs.

nalism assert that blogs have become “a powerful antidote to media consolidation.” (Drum, 2007). Hume (1995) has asserted that the internet could be a powerful disciplinary device for journalists: “As consumers start experimenting in cyberspace, journalists need to address more urgently not the delivery format but the quality of their core product: reliable and useful information on which citizens can act”.

### 3.5 Stylized facts

The review above generates the following stylized facts we wish to provide a simple model for:

1. The news industry is dominated by local and global monopolies on particular markets.
2. While the demand for quality news appears stable, the provision has become more specialized: the quality of the top brands does not appear compromised but mainstream news provision has become increasingly de-coupled from quality news.
3. The business model of the internet is similar to that of early television: it is becoming virtually impossible to get consumers to pay for the news itself, but costs are recouped via the traffic attracted to a bundle of news that generates advertising opportunities.

In the following section, we develop a simple model to capture these stylized facts.

## 4 Model

We consider the market for high-quality news where we see high-quality news as a combination of checking the statements made by primary news providers (at cost  $c$ ) and generating own news (at cost  $C_0$ ). The checking of primary news is in effect an intermediary role which requires looking up references and follow-up, which is a cost that is intimately related to the internet in that the cheaper cost of information dissemination on the internet directly reduces the cost of checking facts. In the remainder, the effect of the increasing presence of the internet will always work via a reduction in the search costs captured by  $c$ . The generation of original news content requires travel, information gathering, interviewing news sources, synthesizing information etc, and carries a cost taken to be invariant to the internet. According to the second quote of the introduction, the cost of generating original news has actually gone up with the advent of new technologies, though

we will in the remainder simply presume it to have stayed constant<sup>18</sup>. The two activities go into a composite commodity called high-quality news that carries unit costs of  $C_0 + c$  per period. We do not distinguish between the provision of news via a physical medium and the internet, implying that our model includes internet news providers. We will first only consider business models where news has to pay for itself, and then later include the role of advertising.

On the buyer side of the market, there is a continuum of consumers of measure  $M$  whose willingness to pay for high-quality news is uniformly distributed between 0 and  $\gamma$ .<sup>19</sup> We interpret  $M$  as the size of the community interested in the specific high-quality news offered by a provider. We can think of a small  $M$  as the market for high-quality news on local politics and a high  $M$  as the market for high-quality news on national or international politics. This means that the same individual can be in several markets at the same time. We summarize this interpretation by presuming that there is a continuum of markets for different types of high-quality news, each associated with a particular  $M$ . We denote the cdf of this distribution as  $Q(M)$  whose pdf  $q(M)$  we presume exists and is continuous and positive on  $\infty > M > 0$ .

We assume that buyers are able to observe the costs made by the producers of high-quality news and thus know who is providing high-quality news and who is not. Whilst this assumption is probably invalid in the short-run because it may take agents some time to find out how much effort a news provider actually puts into providing high-quality news, long-run reputation is linked to the real actions of the news providers. In this sense, our model should be seen as a long-run model that abstracts from the short-run possibility that reputations are imperfect.

As to market interaction, we assume classic Bertrand competition with a first-mover who can produce news after which a competitor would have to decide whether or not to enter. Then, there will only be one producer because any second mover knows the ensuing price war would lead to a loss, since high-quality news only needs to be produced once after which it can be sold on for nothing. Hence the first-mover will have a natural monopoly in its production. This assumption implies we really only analyze whether or not a market is active. The profit function for an active monopolist on market  $M$  as a function of its price reads:

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<sup>18</sup>What is important is not that  $C_0$  is completely independent of the cost of the internet but that it goes down less than proportionally with  $c$ .

<sup>19</sup>In later extensions we will interpret this distribution in willingness to pay as the opportunity cost of searching for a free copy.



$$\pi(p, M) = Mp\left(\frac{\gamma - p}{\gamma}\right) - C_0 - c$$

where  $\frac{\gamma - p}{\gamma}$  is the proportion of potential buyers willing to pay  $p$  for the high-quality news. This function has a maximum at  $p = \frac{\gamma}{2}$  and profits are non-negative as long as

$$M > 4\frac{C_0 + c}{\gamma}$$

The proportion of markets to which high-quality news is provided is denoted as  $N$  and equals  $1 - Q(4\frac{C_0 + c}{\gamma})$ . This means that a decrease in the cost of checking information ( $c$ ) would lead to an increase in the proportion of markets for which high-quality news is provided by an amount

$$\frac{dN}{d(-c)} = \frac{4}{\gamma}q\left(4\frac{C_0 + c}{\gamma}\right)$$

which is strictly positive. This is the positive effect of the internet on the provision of high-quality news.

#### 4.1 The effect of adding blogging and news aggregating

One of the activities of bloggers and news aggregators is to recycle the information generated by news providers. They comment on and effectively re-publish the articles and information in question. This means that to access bloggers and aggregators on particular topics is getting the quality signal of the high-quality news provider for free. However, there is a cost associated to finding the right site, just as before the advent of the internet there was a cost associated with getting a free copy of a high-quality news publication. Before the advent of the internet, one could go to news cafés or peek at the paper of the person sitting alongside on the train, thus avoiding having to pay for the high-quality news. With the internet, blogging and aggregators allows the same kind of access but at a lower price.

Formalizing this argument, we presume that individuals are distributed uniformly on a  $[0, H]$  scale where  $h \in [0, H]$  denotes the effective number of searches an individual needs to make in order to obtain a piece of high-quality news for free. One can interpret this distribution as the distribution of the opportunity cost of individuals, or alternatively as the shame they experience when searching for a free copy of something that is actually priced. The actual cost that someone then incurs is the number of searches needed to find a free copy times the marginal cost per unit of search, i.e.  $hc$  where  $c$  is again a measure of the search costs that get reduced via the internet.

We can interpret this heterogeneity in search costs  $hc$  as the source of an individual's willingness to pay while in terms of enjoyment of high-quality news, all consumers gain the same level of utility  $\gamma$ . The proportion of consumers on market  $M$  who will buy a piece of high-quality news at price  $p$  then becomes  $(\min(\gamma, Hc) - p)/Hc$ . Ignoring the trivially complicating possibility that  $\gamma < Hc$ , this means we take the profit problem for the firm with blogging in market  $M$  to be

$$\pi = Mp\left(\frac{Hc - p}{Hc}\right) - C_0 - c$$

which is maximized at  $p = \frac{Hc}{2}$  and  $\pi^* = c(M\frac{H}{4} - 1) - C_0$ . The effect of a reduction in the marginal cost of searching for information ( $c$ ) now equals

$$\frac{d\pi^*}{d(-c)} = -M\frac{H}{4} + 1$$

where the second term shows the positive effect of reduced cost, but the first term shows the effect of loss of market size due to the increase in customers turning to bloggers and aggregators rather than buying high-quality news. Note that it has to be the case that  $M\frac{H}{4} > 1$  for all markets with positive profits, implying that  $\frac{d\pi^*}{d(-c)} < 0$ . Profits are positive in those markets where

$$M > 4\frac{1 + \frac{C_0}{c}}{H}$$

which means that a decrease in cost now has a different effect on the number of markets provided with a high-quality news service:

$$\frac{dN}{d(-c)} = \frac{-4C_0}{c^2H}q\left(4\frac{1 + \frac{C_0}{c}}{H}\right)$$

implying that the number of active markets will decrease with the advent of the combination of internet and blogging under a business model in which news has to pay for itself.

As to welfare implications, we note that the consumer surplus of high-quality news of price 0 equals  $M\gamma$ . Hence, in the absence of concerns about conflict of interest - for instance, that elected officials may be controlling a media that is supposed to be the public's watchdog monitoring the activities of those very same elected officials - there is a welfare argument that all markets with  $M\gamma > C_0 + c$  should have a state-provider. If we interpret the market for high-quality news as the market for news on the misdeeds of the government, then there is no valid case for state-provision of that good. There might still be a case for provision by independent organizations like non-profits.

## 4.2 Further long-term implications: market separation

What we presumed above was that high-quality news providers effectively provided two distinct goods. One was the intermediary good of checking the factual validity of statements, which came at a marginal cost proportional to the search cost of the internet. The second was generating new information at a fixed-price unrelated to the cost of the internet. While this characterization may be appropriate for traditional high-quality media, one can envisage those two activities being separated into what we denote as ‘News-making’ and ‘News-checking’. We can introduce these two activities by simply having markets for single units of local ‘new news’ with a cdf of  $Q^*(M)$  and markets for single units of ‘checked-news’ with a cdf of  $Q^+(M)$ . Whilst not a perfect match, ‘new news’ corresponds to ‘Hard news’ and ‘checked news’ corresponds to ‘soft news’. In order to avoid introducing more superfluous notation, we keep the willingness-to-pay parameters the same as above.

The proportion of the markets for news-making that is active,  $N^*$ , will decrease with the advent of blogging: following the same chain of reasoning as above and assuming for simplicity that we can split the markets for a unit, the change in the market for news-making due to the reduction in search costs for high-quality news as a result of blogging on the internet will be

$$\frac{dN^*}{d(-c)} = \frac{-4C_0}{c^2 H} q^*\left(4\frac{C_0}{H}\right)$$

which is strictly negative.

The markets for news-checking will see a different effect: following the same chain of reasoning as above, the profits in active markets will be:

$$\begin{aligned} \pi &= Mp\left(\frac{Hc-p}{Hc}\right) - c \\ &= c\left(M\frac{H}{4} - 1\right) \end{aligned}$$

which goes up linearly in  $c$ . The proportion of active markets is given by

$$N^+ = 1 - Q^+\left(\frac{4}{H}\right)$$

which is independent of  $c$ , implying that there is no change in the amount of news-checking that goes on with the advent of blogging: the reduction in the cost of checking facts is at the same rate

as the reduction in the cost of finding ‘checked-news’ on a blog. Hence all that blogging does is to reduce the profits made by a ‘news-checker’, not the level of activity.

### 4.3 The role of advertising

We argued in the empirical section that a large proportion of the revenue for news providers, both on-line and off-line, is not from the direct sale of vetted news but from advertising. Advertisers want to reach many people and as such, it is the volume of sales that is a prime determinant of the price for advertising space.

A simple way to model the role of advertising is to recognize that it increases the revenue of selling news from the headline price  $p$  to the price plus the advertising worth per customer, say  $w$ . The profit function in the market of news-making can be modified as follows:

$$\pi = M(p + w)\left(\frac{Hc - p}{Hc}\right) - C_0$$

implying that the equilibrium price now equals  $p = \frac{Hc - w}{2}$  and profits are positive as long as

$$M > \frac{4HcC_0}{(Hc + w)^2} \text{ iff } \frac{Hc - w}{2} > 0$$

$$M > \frac{C_0}{w} \text{ iff } \frac{Hc - w}{2} < 0$$

which has the property that at very low values of  $c$  (when  $\frac{Hc - w}{2} > 0$ ), all the markets whose costs can be recouped by a sufficient number of potentially interested customers are active. At higher costs, we see that  $M$  initially increases with  $c$  and then goes down, implying a critical cost point  $c'$  (where  $c'$  equals  $\frac{H - w}{H}$ ) where the zero-profit  $M$  is highest and hence the number of active markets is lowest. This result has the interesting implication that with a ‘perfect’ internet, on which the search costs become arbitrarily close to zero, there are more active markets for news-making than with an imperfect internet with higher search costs.

In the market for news-checking we get a slightly different result: profits are positive as long as

$$M > \frac{4Hc^2}{(Hc + w)^2} \text{ iff } \frac{Hc - w}{2} > 0$$

$$M > \frac{c}{w} \text{ iff } \frac{Hc - w}{2} < 0$$

which is increasing in  $c$  in the whole range. As costs decrease, there are more and more markets for news-checking in the absence of any non-internet costs. We thus find that both types of news provision benefit from further reductions of search costs via the internet.

#### 4.4 Competition over advertising

The final issue we want to look at is the notion of competition over advertising. This is especially relevant for the internet, where news aggregators and search engines have so far managed to skim off part of the advertising revenue created by online news.

We conceptualize these intermediaries as a rent-skimming tax on the advertising generated by the advertising. Denote the proportional tax as  $\tau$ . Then, we can follow the same derivation as above and find that news-making markets will be active iff

$$M > \frac{4HcC_0}{(Hc + (1 - \tau)w)^2} \text{ iff } \frac{Hc - (1 - \tau)w}{2} > 0$$

$$M > \frac{C_0}{(1 - \tau)w} \text{ iff } \frac{Hc - (1 - \tau)w}{2} < 0$$

and news-checking will be active iff

$$M > \frac{4Hc^2}{(Hc + (1 - \tau)w)^2} \text{ iff } \frac{Hc - (1 - \tau)w}{2} > 0$$

$$M > \frac{c}{(1 - \tau)w} \text{ iff } \frac{Hc - (1 - \tau)w}{2} < 0$$

which has as a direct implication that the rent-skimming by intermediaries reduces the number of active markets, but that further reductions in search costs would still increase the number of active markets for both news making and news-checking.

An important follow-up question is whether it would be likely that these rent-skimming activities will reduce. The rents a news aggregator or search engine can skim off would seem to be likely to reduce over time because online news outlets can set up their own news aggregators: if search engines or aggregators have a fixed set-up fee, then, as the market grows, it becomes less and less costly for primary news producers to set up their own industry intermediary, which would effectively provide an upper bound on the amount of profit skimmed off.

A second reason to expect lower rent-skimming over time is that the websites of the primary producers of news will gradually become well-known implying that repeat customers will no longer use search engines, or at least will be able to bargain lower taxes in their negotiations with search engines. Essentially, because they are the first-movers, the primary producers of news also are the first-movers in the market for aggregators and search engines with only a temporary disadvantage because of the general public's reliance on intermediaries in the early years of the internet.

## 5 Conclusions

The effect of the internet on the provision of high-quality news has been much debated in the media itself. Bloggers have been accused of recycling the news gathered by traditional media providers, thus making it unviable to produce high-quality news in the first place. In this paper, we examine the historic trends in the media industry in the U.S. and study the impact of digital technologies on the provision and uptake of high-quality news. We present a simple textbook-style theoretical model to explain the stylized facts characterizing the media industry at present.

Our model predicts that internet-based delivery of high-quality news would only survive as an advertising-based market: the reduced search costs of the internet make it virtually impossible to capture the rents of news itself and thus news will have to pay for itself indirectly, just as it has done in the past. Empirically, this appears to be exactly what is happening, with online news provision in the US nearly doubling in that last 4 years alone. Furthermore, specialized high-quality outlets catering to specific markets have also boomed in this period (eg. *the Economist*, *the New Yorker*, *National Geographic*). Hence the empirical picture that emerges is the de-bundling of news: mainstream audiences get 'soft news', specifically catering to their individual tastes. Individuals interested in specific news get it from specialized sources and mainly pay for it via their exposure to advertising.

One long-term potential problem with this new business model is that news is losing its paternalistic element: since news has become unbundled, mainstream audiences are no longer fed what they do not search for. If one presumes consumers are rational and informed, this is a good thing because it means their preferences are better catered for with no loss in welfare. If, on the other hand, we think of consumers as irrational and in need of re-education, the unbundling of news means a de-education of the population.

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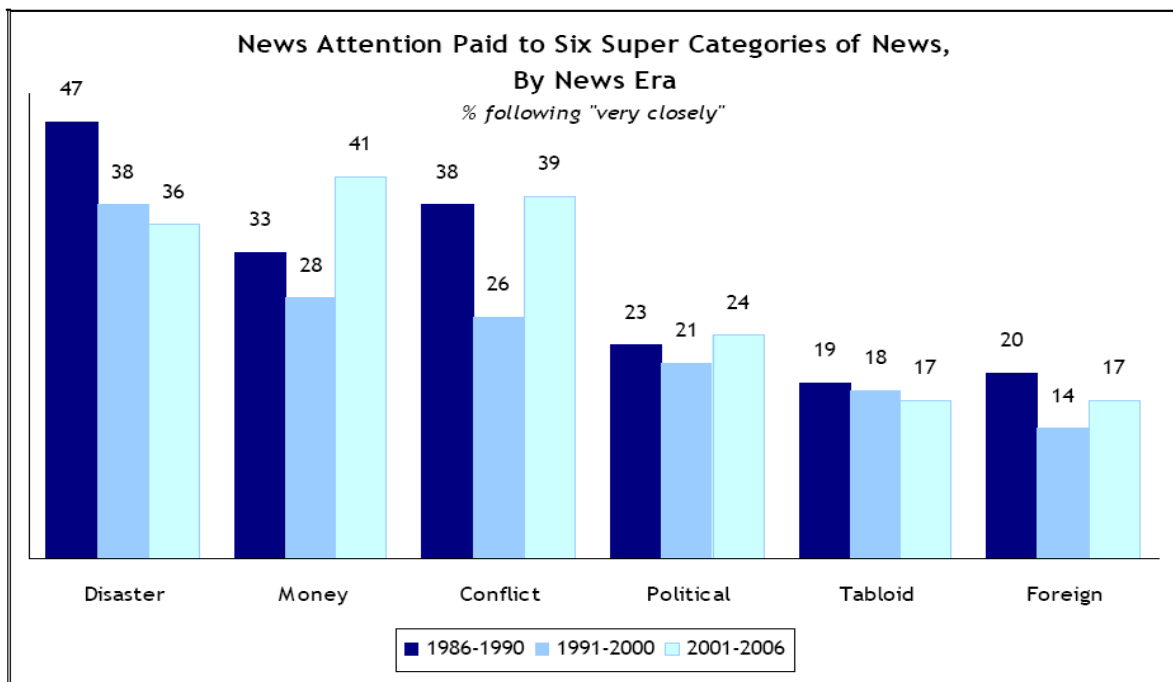
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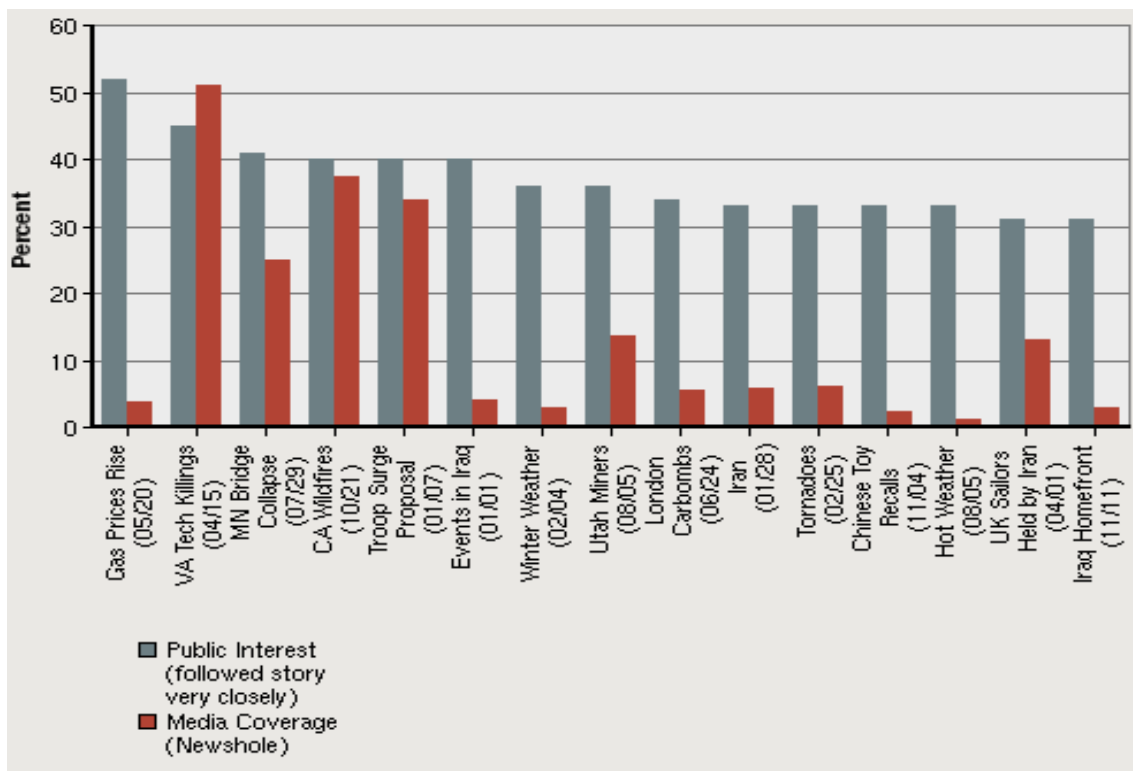
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**Figure 1: News Attention Paid to 6 Super Categories of News, By News Era**  
 (% following "very closely")



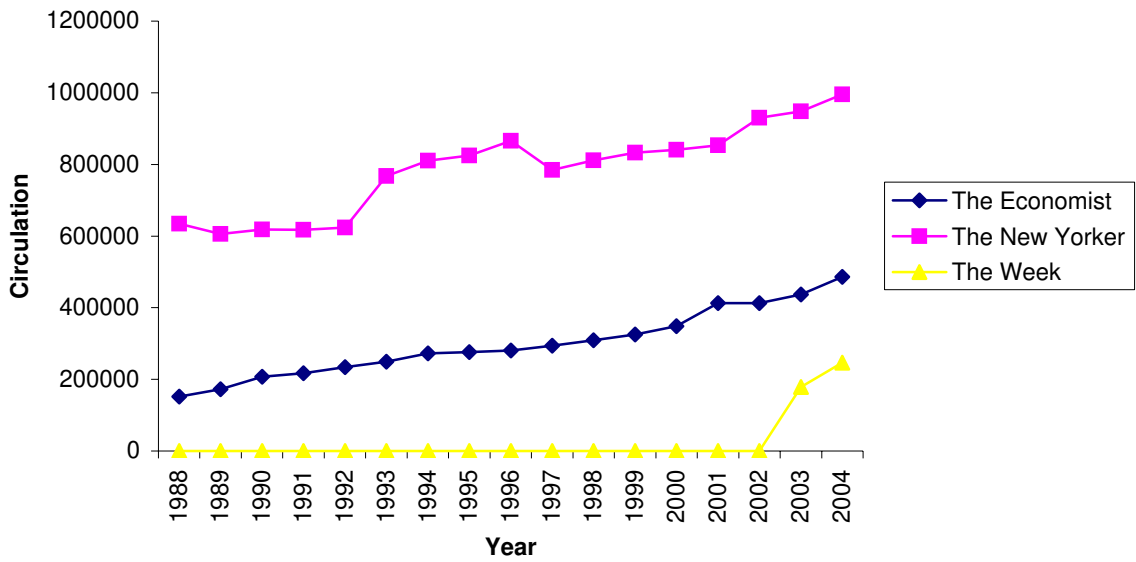
Source: PEW (2007), News Interest Index 1986-2007, Part 2  
[pewresearch.org/assets/pdf/NewsInterest1986-2007Part2.pdf](http://pewresearch.org/assets/pdf/NewsInterest1986-2007Part2.pdf)

**Figure 2: Public Interest vs. Media Coverage, 2007**



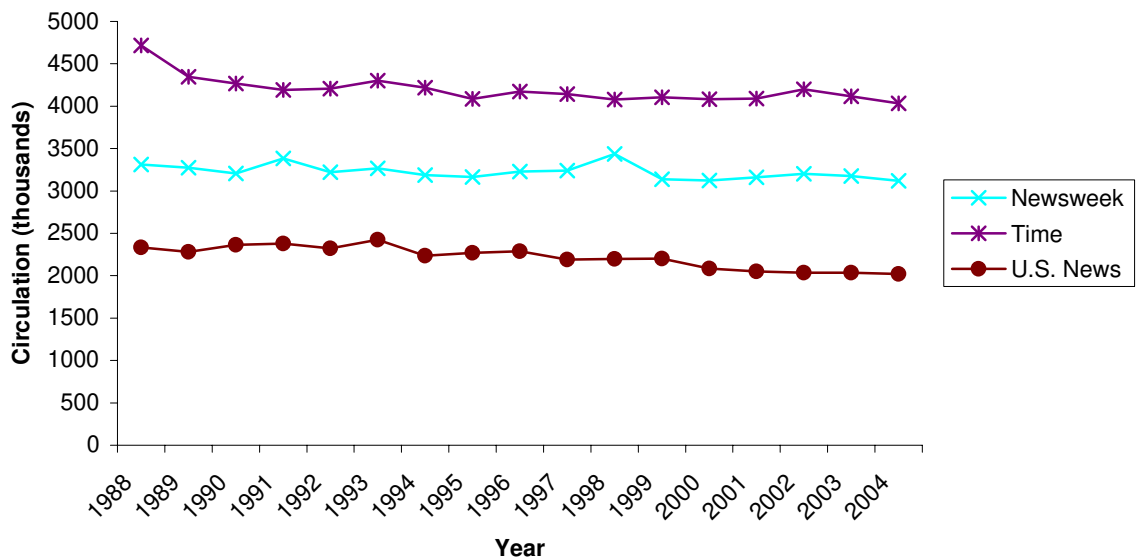
Source: Project for Excellence in Journalism (2007), *A Year in the News*

**Figure 3: Circulation of Non-Traditional News Magazines in the U.S., 1988-2004**



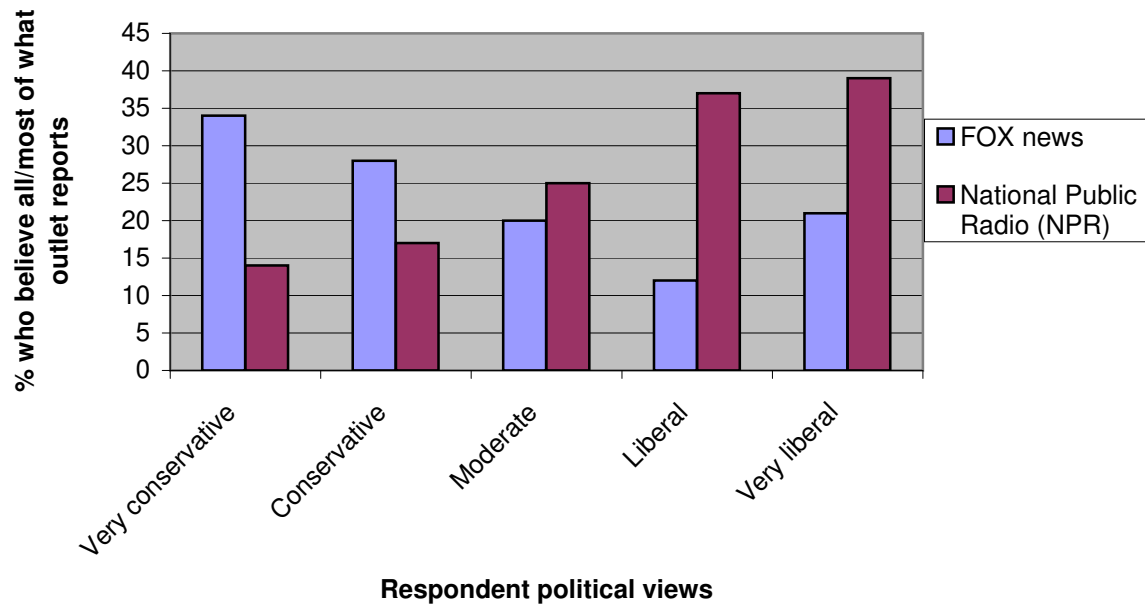
Source: Project for Excellence in Journalism (2006), Magazine Audience

**Figure 4: Circulation Among 'Big Three' News Magazines in the U.S., 1988-2004**



Source: Project for Excellence in Journalism (2006), Magazine Audience

**Figure 5: Political Views and Perceived Media Credibility, 2002**



Source: Gentzkow and Shapiro (2006)

**Table 1: News Media Favourability, 1985-2007**

<i>Favorable opinion of....</i>	1985	1992	1997	2001	2005	2007	<i>2001-'07 change</i>
	%	%	%	%	%	%	%
Local TV news	89	91**	84	83	79	79	-4
Daily newspapers	88	81	79	82	80	78	-4
Cable TV news+	91*	95	86***	88	79	75	-1.3
Network TV news	89	86	76	76	75	71	-5
Major national papers	81	81	67	74	61	60	-1.4

*Source:* PEW (2007), "Internet News Audience Highly Critical of News Organizations", April 9

*Note:* Percentages based on those who could rate each.

\*1987; \*\*1991; \*\*\*1998

+ In 1989 and 1992, the question asked only about CNN. In 1998 and 2001, the cable news question listed CNN and MSNBC as examples. In 2005 and 2007, the Fox news channel was included as well.

**Table 2: Revenue from Circulation and Advertising, U.S. Newspapers**

Year	Circulation*	Advertising+	(2)/(1)
	(1)	(2)	
1960	1604	3681	2.29
1970	2634	5704	2.17
1980	5470	14794	2.70
1991	8698	30349	3.49
2000	10541	48670	4.62
2001	10783	44305	4.11
2002	11026	44102	4.00
2003	11224	44939	4.00
2004	10989	46703	4.25

*Source:* Newspaper Association of America (NAA), Trends and Numbers

\* Includes weekday and Sunday circulation

+ Excludes revenue from online advertising

**Table 3: U.S. Advertising Revenue (US\$ Millions) at 17 Major Media Companies by Sector (2006-'07)**

	Q2_2006	Q2_2007	Growth (%)	Q3_2006	Q3_2007	Growth (%)
<b>Total Ad Revenue</b>	15,490	16,358	6%	14,695	15,804	8%
<i>Of which:</i>						
1. Traditional Media	12,141	12,143	0%	11,288	11,381	1%
<i>Share</i>	78%	74%		77%	72%	
2. Online Media	3,349	4,215	26%	3,407	4,423	30%
<i>Share</i>	22%	26%		23%	28%	
Google	1,421	2,030	43%	1,507	2,201	46%
<i>Share</i>	9%	12%		10%	14%	
Yahoo	1,070	1,119	5%	1,054	1,195	13%
<i>Share</i>	7%	7%		7%	8%	
AOL	449	522	16%	479	540	13%
<i>Share</i>	3%	3%		3%	3%	
Microsoft	409	544	33%	367	487	33%
<i>Share</i>	3%	3%		2%	3%	

*Source:* Blodget (2008)

*Note:* Companies include Google, Yahoo, Microsoft, Time Warner, Disney, Viacom, CBS and Clear Channel, spanning all major advertising sectors: Online, TV, Print, Radio and Outdoor.

**Table 4: Winners of Pulitzer Prize for Journalism for International Reporting**

(1980-2008)

<b>Year</b>	<b>News Daily</b>
1980	<i>Louisville Courier-Journal</i>
1981	<i>The Miami Herald</i>
1982	<i>New York Times</i>
1983	<i>New York Times; Washington Post</i>
1984	<i>Wall Street Journal</i>
1985	<i>Newsday, N.Y.</i>
1986	<i>San Jose (CA) Mercury News</i>
1987	<i>Los Angeles Times</i>
1988	<i>New York Times</i>
1989	<i>New York Times; Washington Post</i>
1990	<i>New York Times</i>
1991	<i>New York Times; Washington Post</i>
1992	<i>Newsday, N.Y.</i>
1993	<i>Newsday, N.Y.; New York Times</i>
1994	<i>Dallas Morning News</i>
1995	<i>Associated Press</i>
1996	<i>Christian Science Monitor</i>
1997	<i>New York Times</i>
1998	<i>New York Times</i>
1999	<i>Wall Street Journal</i>
2000	<i>Village Voice</i>
2001	<i>Wall Street Journal</i>
2002	<i>New York Times</i>
2003	<i>Washington Post</i>
2004	<i>Washington Post</i>
2005	<i>Los Angeles Times/Newsday, N.Y.</i>
2006	<i>New York Times</i>
2007	<i>Wall Street Journal</i>
2008	<i>Washington Post</i>

Source: [www.pulitzer.org](http://www.pulitzer.org)

**Table 5: Top 10 U.S. Newspapers, 2006-'08**

<b>2006</b>	<b>2007</b>	<b>2008</b>
1 <i>USA Today</i>	<i>USA Today</i>	<i>USA Today</i>
2 <i>The Wall Street Journal</i>	<i>The Wall Street Journal</i>	<i>The Wall Street Journal</i>
3 <i>The New York Times</i>	<i>The New York Times</i>	<i>The New York Times</i>
4 <i>Los Angeles Times</i>	<i>Los Angeles Times</i>	<i>Los Angeles Times</i>
5 <i>The New York Post</i>	<i>New York Daily News</i>	<i>New York Daily News</i>
6 <i>New York Daily News</i>	<i>The New York Post</i>	<i>The New York Post</i>
7 <i>The Washington Post</i>	<i>The Washington Post</i>	<i>The Washington Post</i>
8 <i>Chicago Tribune</i>	<i>Chicago Tribune</i>	<i>Chicago Tribune</i>
9 <i>Houston Chronicle</i>	<i>Houston Chronicle</i>	<i>Houston Chronicle</i>
10 <i>Newsday (Long Island)</i>	<i>Arizona Republic-Phoenix</i>	<i>Arizona Republic-Phoenix</i>

Source: Audit Bureau of Circulations

Note: Ranked by weekday averages for 6 months ending 30th September

**Table 6: 'Readability' Scores for Select Newspaper Articles, Various Years**

	<i>New York Times</i>				<i>Christian Science Monitor</i>				<i>Washington Post</i>			
	1981	1990	2000	2007	1980	1990	2000	2007	1980	1990	2000	2007
Flesch-Kincaid	9.4	11.0	13.7	13.0	10.3	10.9	10.8	10.9	12.4	11.9	11.2	13.5
ARI	10.7	12.2	15.5	14.8	11.3	12.4	11.6	12.1	14.4	13.2	12.9	16.1
Coleman-Liau	12.4	14.6	12.7	10.5	12.6	14.5	11.8	12.2	15.0	11.9	14.8	14.8
Flesch Index	62.2	49.2	47.3	56.0	56.8	51.2	57.1	56.8	45.9	54.5	49.9	44.7
Fog Index	12.2	14.1	17.4	16.0	12.4	13.5	13.9	14.4	16.5	15.7	14.4	17.3
Lix	8	9	10	9	8	9	8	8	11	9	9	11
SMOG-Grading	11.0	12.6	14.3	12.3	12.0	12.1	12.2	12.6	14.2	13.3	12.8	14.6

*Note:* Indices computed using online tool <http://www.readability.info/info.shtml>.

Indices computed for 1 article selected from a March issue in each year, sourced from online archives of newspaper websites.

*Flesch-Kincaid Grade* - converts the Reading Ease Score to a U.S. grade-school level needed to comprehend the text.

*ARI* - automated readability index. Its output is an approximate representation of the U.S. grade level needed to comprehend the text

*Coleman-Liau* - Its output is an approximate representation of the U.S. grade level needed to comprehend the text

*Flesh index* - value is usually between 0 (hard) and 100 (easy); standard English documents averages approximately 60 to 70.

*Fog index* - the value is a school grade. The 'ideal' level is 7 or 8. A level above 12 indicates the writing sample is too hard for most people to read.

*Lix* - Its output is an approximate representation of the U.S. grade level needed to comprehend the text.

*SMOG-Grading* for English texts reports a school grade required to comprehend the text.

**Table 7: Total Web Audience for Newspaper Websites, 2006-'09**

<b>Month</b>	<b>Unique Audience</b>	<b>Active Reach %</b>	<b>Web Page Views</b>	<b>Pages Per Person</b>	<b>Time Per Person (hh:mm:ss)</b>	<b>Visits Per Person</b>
<b>2009</b>						
Jan-09	74,811,622	44.34	3,725,769,971	49.80	00:45:58	8.48
<b>2008</b>						
Dec-08	66,671,638	40.13	2,959,555,244	44.39	00:42:18	8.46
Nov-08	69,051,075	40.77	3,276,170,196	47.45	00:45:02	8.69
Oct-08	68,968,125	42.17	3,537,248,971	51.29	00:49:08	9.27
Sep-08	67,703,978	41.53	3,686,180,159	54.45	00:49:20	9.20
Aug-08	69,313,361	41.52	3,421,605,140	49.36	00:43:18	8.52
Jul-08	67,952,516	41.21	3,410,220,416	50.19	00:44:49	8.48
Jun-08	65,419,560	39.89	3,137,650,162	47.96	00:40:23	8.17
May-08	69,405,629	41.70	3,040,566,286	43.81	00:39:51	7.91
Apr-08	64,341,029	39.11	2,851,466,740	44.32	00:41:13	8.15
Mar-08	65,685,195	39.90	3,111,859,189	47.38	00:43:37	8.30
Feb-08	66,546,096	41.00	3,064,613,644	46.05	00:43:09	8.07
Jan-08	66,880,280	41.32	3,228,542,924	48.27	00:45:49	8.48
<b>2007</b>						
Dec-07	63,052,143	38.20	2,888,760,593	45.82	00:41:57	7.83
Nov-07	62,279,018	38.88	2,939,499,698	47.20	00:42:20	7.94
Oct-07	63,209,003	39.77	3,240,780,669	51.27	00:46:44	8.59
Sep-07	58,160,770	36.96	2,836,328,492	48.77	00:43:44	8.15
Aug-07	59,278,593	37.42	2,828,613,489	47.72	00:41:52	8.22
Jul-07	59,635,245	37.05	2,735,019,015	45.86	00:40:07	8.00
Jun-07	58,624,422	36.74	2,507,508,944	42.77	00:39:55	7.55
May-07	60,252,458	37.78	2,726,832,647	45.26	00:40:16	7.91
Apr-07	58,680,127	37.40	2,761,303,356	47.06	00:42:01	8.01
Mar-07	59,596,337	37.74	2,987,841,885	50.13	00:44:09	8.56
Feb-07	58,762,875	37.47	2,827,940,729	48.12	00:43:33	7.94
Jan-07	58,897,922	37.56	3,149,859,906	53.48	00:49:11	8.67
<b>2006</b>						
Dec-06	56,013,742	34.68	2,688,692,759	48.00	00:42:55	7.80
Nov-06	58,129,985	36.33	2,792,081,066	48.03	00:41:59	7.93
Oct-06	58,717,539	37.18	2,975,449,790	50.67	00:44:04	8.16
Sep-06	58,186,363	37.03	2,781,408,028	47.80	00:42:01	7.94
Aug-06	57,962,930	37.23	2,779,654,273	47.96	00:43:17	8.21
Jul-06	54,649,433	35.29	2,550,837,300	46.68	00:39:19	7.92
Jun-06	54,499,768	34.99	2,532,263,431	46.46	00:39:10	8.01
May-06	56,490,054	36.55	2,555,477,529	45.24	00:39:38	7.94
Apr-06	53,943,322	35.13	2,467,046,455	45.73	00:39:40	7.90
Mar-06	57,891,526	37.61	2,725,803,499	47.08	00:40:19	8.07
Feb-06	53,852,860	35.69	2,545,631,675	47.27	00:40:14	7.96
Jan-06	56,514,236	36.59	2,693,921,202	47.67	00:42:16	8.17

Source: Nielsen Online, MegaPanel Data

<http://www.naa.org/TrendsandNumbers/Newspaper-Websites.aspx>



**Table 8: Newspaper Websites - Unique Visitors Vs. Online Revenue in 2006**

<b># of Unique Visitors</b>	<b>\$500,000 or less</b>	<b>\$500,000 - 1 million</b>	<b>\$1 million - 5 million</b>	<b>\$5 million 10 million</b>	<b>\$10 million - 15 million</b>	<b>\$15 million or more</b>
25000 and under	100%	0%	0%	0%	0%	0%
25,001-50,000	100%	0%	0%	0%	0%	0%
50,001-100,000	71%	21%	7%	0%	0%	0%
100,001-250,000	43%	23%	30%	0%	0%	0%
250,001-500,000	17%	13%	52%	17%	0%	0%
500,001-1,00,000	17%	6%	28%	50%	0%	0%
More than 1,000,000	4%	0%	0%	12%	20%	64%

Source: Lawton (2007)