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# Media failures and media markets

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*“Doubt is our product since it is the best means of competing with the ‘body of facts’ that exists in the mind of the general public. It is also the means of establishing a controversy.”*

*Brown and Williamson, Internal memo, 1969<sup>1</sup>*

## **1. Introduction**

The introduction of the Internet in the late 1980s and early 1990s was accompanied by much enthusiasm and a high degree of optimism. From all corners, leading experts, politicians, public officials, business leaders, scholars and journalists predicted that the Internet would transform the world, it would revolutionize not just the everyday business of journalism and communication, but, as CEO of *Cisco Systems*, John Chambers, put it, it would change “how people live, work, play and learn [...and it would] have every bit as much impact on society as the Industrial Revolution.”<sup>2</sup> Overwhelmingly, the expectations were that the changes would soon be visible and clearly positive. In particular, it was expected that “the new media of the Internet would complement the traditional media of newspapers, radio, TV and cable, ushering in a golden age of communications [and that] news and information journalism would flourish.”<sup>3</sup> Indeed, the technological advances have been immense and it is undeniable that there is a nearly infinite amount of information available

and accessible daily on the Web, some of which is of very high quality and most of which is free. It is also undeniable that there is an enormous potential of the Internet and of digital networks for both communication and information sharing and transmission. Nonetheless, in terms of the quality of information held by large segments of the population it also seems clear that the information revolution is not complete yet.

In this *opuscle*, we consider the performance of mainstream media in informing the general public on key issues of public concern both prior to the Internet age and today, some 25 years after the introduction and popularization of the Internet began. Our focus is on discussing potential limitations of mainstream news media to disseminate relevant public interest information to the general public. We claim that media failures can occur now as they did prior to the Internet, and that in this respect the Internet has not really improved things all that much.

We begin by discussing a few episodes—before and after the introduction of the Internet—where we believe that mainstream news media (in industrialized countries with advanced democracies) failed to adequately inform citizens at large on important issues of public concern. This turned out to have significant consequences for the citizens of these and sometimes even other countries. To document the failures, we rely on literature from communication, journalism and media studies. We find that media failures whereby large segments of the population are misinformed about some of the most important topics of the day still occur now as they did prior to the Internet. A leading example is that of the coverage of anthropogenic climate change.

We then discuss recent literature in media economics that can help to understand and elucidate several aspects of the media failures. Essentially, we argue that many of the biases present in traditional media (e.g., originating from the ownership structure of the media, from advertisers, news sources, or other special interest groups) continue to apply today as they did prior to the Internet, partly because they carry over to new media, but also because most of the news continues to originate from the same type of sources as before. At the same time, we argue that the Internet has deviated important amounts of advertising revenues away from newsrooms towards platforms such as *Google* and *Facebook* that so far have not significantly contributed to actually generating news content. Moreover, the Internet has added a few more biases (e.g., originating from information abundance coupled with attention bias, and from the key role played by ranking algorithms with their tendency to concentrate audiences on few outlets) that were not really present before and that can further contribute to polarization and low levels of information held by the general public. We conclude with a brief policy discussion that emphasizes the role of public media and regulation in contributing towards a better performing news media landscape.

## **2. Episodes of media failure in the Internet age**

Before discussing the more recent failures, we begin by briefly recalling a well-documented example from before the Internet age that, as we will see later, shares several key features with some of the more recent failures.

## 2.1 Health hazards of tobacco

The failure of mainstream media to cover health hazards of smoking for entire decades has been extensively documented (Baker 1994, Chaloupka and Warner 2000, Bagdikian 2004, Oreskes and Conway, 2010, Lewis, 2014 among many others.) Bagdikian 2004, p. 250–252, summarizes the US mainstream media coverage at the time: *“In 1980 [...] there were still more stories in the daily press about the causes of influenza, polio, and tuberculosis than about the cause of one in every seven deaths in the United States,”* so that *“[a]s late as fourteen years after the Surgeon General cited serious health risks from smoking, and seven years after the Surgeon General declared that even second-hand smoking may cause lung cancer, 64 million Americans, obviously already addicted, smoked an average of 26 cigarettes a day.”* Baker 1994, p. 51, adds that, in the same period, surveys indicated that, *“half the general and two-thirds the smoking population [did] not think smoking made ‘great deal of difference’ in life expectancy.”* We recall this case here, since the way in which doubt was created and persisted in the mind of the general public has several points in common with some of the episodes that follow. We will come back to the sources of bias in Section 3.

## 2.2 Anthropogenic climate change

Climate change due to human activity is a well-established and accepted fact in the scientific community. To give a sense of this, in a comprehensive study of the scientific literature, Oreskes 2004 finds that of *all* the 928 peer-reviewed papers published on the issue between 1993–2003 none (0%) disagree with the *“scientific consensus position”* that *“most of the observed global warming over the last 50 years is due to the greenhouse gas concentration.”* At the same time, in a study of US newspaper coverage, Boykoff and Boyk-

off 2004 find that *over half* (53%) of a random sample of articles published in quality US national newspapers (*New York Times*, *Washington Post*, *Los Angeles Times*, and *Wall Street Journal*) between 1988–2002, give *equal* attention (what they refer to as the *“balanced view”*) to the scientific consensus position on one side and to the industry-supported view on the other, which in order to cast doubt on the scientific position holds that *“natural fluctuations suffice to explain global warming.”* Boykoff 2008 finds even more bias in the US TV news, with 70% of randomly selected news segments (from *ABC World News Tonight*, *CBS Evening News*, *NBC Nightly News* and three *CNN programs*) giving again the *“balanced view.”*

More recently, Oreskes and Conway 2010 discuss several parallels of the coverage of anthropogenic climate change and the coverage of the health hazards of smoking. They conclude their discussion of the episode summarizing: *“This divergence between the state of science and how it was presented in the major media helped make it easy for our government to do nothing about global warming. [...] In July 1997, three months before the Kyoto protocol was finalized, U.S. senators Robert Byrd and Charles Hagel introduced a resolution blocking its adoption. Byrd-Hagel passed the senate by a vote of 97-0. Scientifically, global warming was an established fact. Politically, global warming was dead.”* According to a recent poll of the *Pew Research Center* of 6/16/2015, only about half of Americans attribute global warming to human activity, which is the lowest among 20 nations polled in 2014.<sup>4</sup>

## 2.3 The millennium bug

This is a story that ran for years, starting around 1993, warning that, on the eve of December 31, 1999, computer systems across the world would stop functioning and would create chaos

almost everywhere, from hospitals, prisons, to banks, transportation and security systems. Davies 2009 contains a detailed account of the coverage. Some headlines he mentions include, in Britain: “National Health Service patients could die because insufficient time and thought have been devoted to the millennium bug” (*Daily Telegraph*), “Banks could collapse if they fail to eradicate the millennium bug from their computer systems” (*Guardian*), “All trace of pension funds contribution could be wiped out in business failing to cope with the millennium bug” (*Independent*). Similar headlines abounded in many other countries, for example, in the US: “The day the world crashes” (*Newsweek*), “A date with disaster” (*Washington Post*) etc. Amidst such dramatic headlines and articles very little attention was paid to experts who did not believe the effects of the millennium bug would be serious.<sup>5</sup>

Governments were reported to have spent hundreds of millions (and upwards of a hundred billion in the case of the US) on Y2K protection. Yet, as the sun rose again on January 1, 2000, near to no incidents occurred (almost equally across countries that had and had not undertaken years of protective measures, some of the latter included Russia and South Korea). The next day, journalists simply dropped the story altogether, and in contrast to the hype created prior to the fatal day, barely anything was written on the non-occurrence of the millennium bug. After discussing the episode, Davies 2009, p. 45, concludes: “*When you stand back and see the scale of this —the penetration of falsehood deep into the foundations of our collective thinking; the construction of so much activity on top of those false foundations; the money, the time, the energy which are thrown into them; the sheer waste of opportunity— you see a kind of madness, a kind of psychotic society which has started to lose contact with reality and believes its own delusions. If we could prove that this was*

*being organized by some malign conspiracy, it would be a great relief since we could oust the conspirators and cure the sickness. What really makes this frightening is that this group psychosis is now the natural creation of our information industry.”*

Essentially, once the story started being covered in the mid 1990s it continued to be covered and repeated, with very little invested by the mainstream press in terms of fact checking and questioning of the foundations of the basic story; “Y2K deniers” were barely given any attention.

## **2.4 Weapons of mass destruction, Al-Qaeda links, and the 2003 invasion of Iraq**

In the run-up to the 2003 US-UK-led invasion of Iraq, a central argument supporting the case to invade was the presence of weapons of mass destruction in Iraq, which turned out to be completely fabricated; another unfounded argument given to motivate the invasion, was the one of alleged ties between Saddam Hussein and Al-Qaeda. Although the evidence of the presence of such weapons of mass destruction and the ties with Al-Qaeda were heavily debated and *criticized* around the world, the mainstream media coverage in the US did a very poor job to convey the critical message.<sup>6</sup> Lewis, 2014 lists 935 false statements made by then President George W. Bush and a dozen top administration officials on the presence of weapons of mass destruction in Iraq and on Saddam’s links to Al-Qaeda, which went essentially unchallenged in US mainstream media (see also Hiebert 2003, Hayes and Guardino 2010, Cushion 2012). McChesney 2013, p. 89, calls this “*one of the darkest episodes in American journalism history.*” While again some special interests benefited, the human and economic costs caused by the invasion were enormous.<sup>7</sup> The effects of the 2003 Iraq war are still felt today, not only in the Middle East.

## 2.5 Health care reform in the USA

Another important case is the coverage of the health care reform in the USA. With an expenditure of around 17% of GDP, health care in the USA is about twice as expensive *per capita* as it is in other developed countries. At the same time, with over 45 million uninsured citizens it consistently ranks at the lower end of studies evaluating health care systems in industrialized countries (including high-profile US-sponsored studies).<sup>8</sup> While there is some understanding among the general public that the US health care system is expensive and could function better, the extent of its inefficiency and dysfunctionality, especially when compared to other countries, is less understood.<sup>9</sup> The efforts of the Obama administration to pass legislation to reform the health care system fell short of solving key issues like providing universal health care coverage and a public health plan option that would have moved the system closer to some of the “better” performing ones in Europe and elsewhere. As some argue, these issues are not really taken seriously by mainstream media. For example, while *Pew* reports of 8/6/2009 and 3/23/2010 confirm the public’s general discontent with the mainstream media coverage of the health care reform, a more recent *Pew* report of 6/19/2012 shows that over the months during which the health care reform was debated in 2009–2010, the coverage centered more on politics than the workings of the health care system: fully 41% of health care coverage focused on the tactics and strategy of the debate, while only 9% of the coverage focused on the core issue, namely, how the actual US health care system currently functions, what works and what does not work; details of reform proposals filled another 23%. The subject received far less attention once the battle over health care shifted to the courts in 2010. Reports on the dysfunctionality of the US system are typically ignored by the mainstream press.<sup>10</sup>

On the other hand, an article from as far back as 1970 in the *New York Review of Books* already warned of the “*medical-industrial complex*.”<sup>11</sup> Throughout the years, and especially during the months prior to the debate of Obama health care reform, several articles appeared in specialized journals identifying key strengths and weaknesses of the US system, documenting the commercially driven sources of the increased costs accompanied by low quality service, yet their visibility in the mainstream press was again not high.<sup>12</sup> As a result, attempts to reform the system encounter much resistance, and the US health care system continues to be both expensive and inefficient.

## 2.6 The 2007–2008 global financial crisis

Another episode, arguably less clear-cut, but one that nonetheless has been widely debated and that has meanwhile also been studied by a number of media scholars, is the case of the coverage of the years preceding the financial crisis of 2007–2008. The coverage failed to inform readers of predatory lending practices that were becoming common among a number of large financial institutions (where similar malpractices had been exposed in the 1990s, for example). In a monograph dedicated to the coverage of the years prior to the financial crisis in the USA, Starkman 2014, summarizes: “*the record shows that the press published its hardest-hitting investigations of lenders and Wall Street between 2000 and 2003, even if there were only a few of them. Then [...] it lapsed into useful but not sufficient consumer- and investor-oriented stories during the critical years of 2004 through 2006. Missing are investigative stories that directly confront powerful institutions about business practices while those institutions were still powerful.*” Starkman emphasizes the importance for general audiences of what he calls “*accountability reporting*” (sometimes also referred to as public-interest or public-service reporting), which he finds has

seriously gone missing in the last decades, and which he opposes to “*access reporting*” that tends to remain close to the sources and to their literal messages.

Starkman, who at the time was editor at *Columbia Journalism Review*, also performed a content analysis of the mainstream coverage, and studied some 737 articles of top newspapers and business periodicals in the USA related to financial collapse, and also requested samples of “best reporting” from financial journalists. He finds a lack of coverage in mainstream press articles about doubtful practices widely used by several large companies throughout the years up to the unfolding of the crisis and concludes that, after 2003, “*the business press institutionally lost whatever taste it had for head-on investigations of core practices of powerful institutions.*” (Starkman, 2009). Other journalists and journalism scholars have come to similar conclusions. For example, Usher 2012 interviewed 52 business journalists in the USA and found a “*lack of media accountability across a diversity of different business news organizations.*” (See also Tambini 2010 and Manning 2013). Knowles, Phillips and Lidberg 2015, study three reputable mainstream publications in three different continents, the “*New York Times*”(USA), the “*Guardian*”(UK), and the “*Sydney Morning Herald*”(Australia) during three crises starting with the recession in the 1990s, the Dot Com boom in 2000, and ending with the global financial crisis of 2007–2008. Based on a text analysis of 1207 articles, they find a decreasing trend in the quality of reporting standards of financial news directed at the general public. Some of the quantitative measures include: a decreasing amount of warnings and alerts directed to the general public and a narrowing of sources cited (e.g., business and public relations sources appear as most popular sources and also increasingly mentioned over the years, by contrast, members of the public, academics or non-governmental organ-

izations are among the least popular sources and decreasingly mentioned over the years). Mercille 2014 focuses on the coverage in Ireland and other European countries before and after the crisis hit and finds that is rather favorable to banks and financial institutions. Overall, the mainstream media failed to inform about malpractices and to warn the general public about what was coming. Clearly, the consequences of the financial crisis have been enormous and are still felt today.

## 2.7 Tax havens and global business

To take a last example, consider tax havens and their role for global business and finance. Already in 2012 the total wealth held in tax havens across the world had been estimated to be between \$21 and \$32 trillion (Henry, 2012). More recently, with estimates of 8% of world financial wealth of households held in tax havens (Zucman 2015, p.3) and with 72% of Forbes 500 companies maintaining subsidiaries in tax havens (*Citizens for Tax Justice*, Report, October 2015), it seems that offshore accounts and bank secrecy are increasingly an essential part of globalized business. A Christian Aid report of 2008 estimated the losses in taxes to the developing world due to profit shifting by multinational corporations at \$160 billion per year. More recently the same number has been estimated at \$77–111 billion for the US and \$280 billion worldwide (Clausing 2016). Furthermore, Zucman 2015 estimates yearly losses of \$200 billion worldwide in uncollected income, inheritance and wealth taxes. Yet, since a G20 summit held in London in 2009 that declared the “end of banking secrecy,” total financial wealth in tax havens has actually increased 25% (Zucman 2015, p.3). While there is clearly a specialized literature on the topic, the coverage in mainstream media seems to be rather selective.



For example, Hervé Falciani, ex-computer technician at *HSBC*, became famous for his list containing the names of some 130.000 potential tax evaders, clients of the *HSBC*'s Swiss subsidiary *HSBC Private Bank*. The *Lagarde list*, which was a subset of Falciani's list made headlines in 2010 and was often mentioned especially in connection with the Greek crisis, given that it also included the names of some prominent Greek citizens. Yet Falciani makes it clear in his book with Mincuzzi of 2015, that his purpose of handing over the data to the French authorities was not at all for the sake of the list or any specific names on it, but rather to expose the systemic way of making business of one of the world's largest banks, an aspect that is barely been mentioned in mainstream coverage. In 2012, *HSBC* again came under attack for “*laundering billions of dollars for Colombian and Mexican drug cartels (among others) and violating a host of important banking laws (from the Bank Secrecy Act to the Trading With the Enemy Act)*” (*Rolling Stone*, 12/13/2012). US assistant attorney general Breuer and the US Justice Department decided not to pursue criminal prosecution of the bank, opting instead for a financial settlement of \$1.9 billion. Again, the case received some selective coverage but was soon forgotten. More recently, the bank was again accused of “*suspected aggravated money laundering [...]. The revelations by the Guardian, the BBC, Le Monde and other media outlets, showed that HSBC's Swiss banking arm turned a blind eye to illegal activities of arms dealers and helped wealthy people evade taxes*” (*The Guardian*, 2/18/2015). Around the same period, Peter Osborne, then chief political commentator of the *Telegraph*, actually resigned in the same week on February 17, 2015, stating “*You needed a microscope to find the Telegraph coverage [of this story]. ... The Telegraph's recent coverage of HSBC amounts to a form of fraud on its readers.' Mr Osborne also criticised the paper for running stories designed to do no more than generate online traf-*

*fic, even if they were known to be false, and for running positive pieces to please large advertisers*” (*Financial Times*, 2/17/2015). While the journalism and media studies literature on the coverage of this specific topic is still largely missing, it seems to be similar enough to some of the media failures mentioned above to be a further potential candidate. This is also roughly consistent with some of the statements of authors working in the field such as Shaxson 2012, p. 281, who mentions understanding and raising awareness about the systemic aspects of offshore accounts for global business as a top priority in the fight against tax havens.

## 2.8 Common features of the media failures

Before discussing some of the theories and explanations addressing the above deficiencies and failures of mainstream coverage, we briefly summarize some aspects that the different media failures have in common. First, what seems to be lacking in each of the cases is what some have called accountability reporting, or public-service or public-interest journalism (Starkman 2014). This means that the general coverage fails to adequately convey the big picture or the grand story of the issue. Second, high quality information is available in most cases, but only on smaller and less visible outlets. Third, each episode has serious implications for the general public and beyond. Fourth, each case has some parties or special interest groups benefiting in a more or less important way from the lack of visible accountability reporting; these special interest groups can be individuals, firms, institutions; they are typically quite powerful; often, the special interest groups themselves or public relations companies representing them actively disseminate information favorable to their case or indirectly contribute to weakening the visibility of the accountability reporting. Fifth, as a result of the above, large segments of the general population are “misinformed” on key issues of public concern.



### 3. Sources of media failure in the Internet age

Before discussing some of the contributions from media economics on news and media bias before and during the Internet age, we discuss a few relevant developments and background facts concerning news production and new media in the Internet age.

#### 3.1 Some facts about news production in the Internet age

The Internet has brought about a number of changes in the funding and channeling of audiences that has affected the business of news production and ultimately the quality of information held by the general public in the Internet age.

**Shrinking advertising revenues.** Perhaps the most important fact about news production in the Internet age is the amount of money that has been diverted away from newsrooms to other companies on the Internet, due to advertising and classified advertising that has found other ways to reach consumers, through platforms such as *Google* and *Facebook*, for example, but also *craigslist* or *eBay*. These have taken away significant amounts of revenues from the news industry. A recent *Pew* report (of 8/7/2013) suggests that total advertising revenues (including online advertising) for the newspaper industry in the US have fallen by over 50% in less than a decade, from US\$46.2 billion in 2003 down to US\$22.3 billion in 2012.<sup>13</sup>

**Shrinking numbers of news journalists.** An immediate consequence of the shrinking revenues from advertising has been that many newspapers and news media firms have been forced to shut down or to considerably downsize their newsrooms. Total employment in newsrooms in

the USA has fallen steadily by more over 41%, from 56.242 in the year 2000 down to 32.975 in 2015, according to the *American Society of News Editors* (McChesney and Nichols 2010 contain further discussion and also note that many of the negative trends in US journalism already started before the Internet; Cagé, Viaud and Hervé 2015, consider the case of France). At the same time, the number of specialists working in public relations has increased steadily over the same period reaching a ratio of 4.6 PR specialists per working journalist in the USA in 2013 (*Pew* report 8/11/2014).

**Centrality of traditional newsrooms in generating news.** An important *Pew* report of 1/11/2010 addresses the question of where the news originates in today's media ecosystem. It studied a representative area in the US and concluded that, "*while the news landscape has rapidly expanded, most of what the public learns is still overwhelmingly driven by traditional media —particularly newspapers.*" It found that "*much of the 'news' people receive contains no original reporting. Fully eight out of ten stories studied simply repeated or repackaged previously published information. And of the stories that did contain new information nearly all, 95%, came from traditional media —most of them newspapers. These stories then tended to set the narrative agenda for most other media outlets.*"<sup>14</sup> This shows the importance of the traditional news media with their shrinking news journalists to deliver the new stories of the day. This is an issue that deserves more empirical work, also by economists, since it involves the costs and benefits of producing new stories.

More recently, a study by Curran et al. 2013 looks at (mainstream) websites in nine countries from four continents and compares these to traditional offline outlets in TV, radio, and print. They find that online news websites are not significantly different from their offline counterparts. In many

cases online news seem to be even more inclined to rely on voices of authority. “*This convergence they conclude “is due to the way in which leading media conglomerates have extended their hegemony across technologies.”* Other authors such as Hindman 2009, Curran, Fenton and Freedman 2012, and McChesney 2013 also find limited evidence of democratization and empowerment across society through the Internet.

**Concentrated online audiences and the long tail.** A further aspect of the Internet and the digitization of content is the reduced fixed cost of setting up a website and posting content. While this has clearly led to a large proliferation of websites and weblogs and in many cases to what has been called a “long tail,” there is often also a tendency towards high concentration at the top, that is, towards market structures where few online platforms attract an increasingly large share of the audience (see, for example, Weeds 2012). Network effects clearly also play an important role. In a famous article in the *Wall Street Journal* of 2010 with the title “*In the grip of the Internet monopolists*”, Wu noted: “*The Internet has long been held up as a model for what the free market is supposed to look like — competition in its purest form. So why does it look increasingly like a Monopoly board? Most of the major sectors today are controlled by one dominant company or an oligopoly. Google ‘owns’ search; Facebook, social networking; eBay rules auctions; Apple dominates online content delivery; Amazon, retail; and so on.*”

Hindman 2009 studies the question of “*democratization*” of politics on the Internet. He asks to what extent the Internet has been successful in making politics less exclusive, and helped empower ordinary citizens at the expense of elites, and overall in “*democratizing*” US politics. His conclusion, which is already evident from the title of the book (“*The myth of digital democra-*

*cy*”) is that, while there are many (hundreds of thousands of) outlets that discuss and comment on politics and public affairs issues, they are barely visible to the greater public, and most of the blog readership goes to a handful of mainstream professionals’ sites. Even successful websites and weblogs, have a readership comparable to a high school journal. Similarly, online news audiences seem to be concentrated on the top twenty outlets (see also Fenton 2010, Curran et al. 2012, and McChesney 2013). On the other hand, others suggest that the Internet may actually lead to “too little” concentration by favoring self-segregation and “*cyber-balkanization*” (Sunstein 2009, Halberstam and Knight 2015, Bessi et al. 2015). Gentzkow and Shapiro 2011 study the segregation of audiences for online news outlets and find relatively low segregation. That is, they find that, while audiences are less segregated on broadcast television news, cable television news, magazines and local newspapers, than on online news websites, they are more segregated on national newspapers. However, they find that segregation on online news websites is substantially lower than in face-to-face interactions with neighbors, co-workers or family members.

**Personalized search and targeting.** Online sites also have the ability to tailor the content offered to the personal characteristics of the individual. Thus, search results may be displayed in a way that takes into account personal characteristics of the individual (location, past search history etc.), but also advertising and even news content may be selected as a function of such characteristics. In some cases this can greatly enhance the efficiency of the search process, especially in view of the enormous amount of information that is potentially available. At the same time it can also lead to polarization of opinions and to sub-optimal information aggregation, as we will see in the next section.

### 3.2 Traditional sources of bias

Many of the episodes mentioned above can be in part explained by what we refer to as traditional sources of biases, that is, sources of media bias that were present in mainstream media even before the Internet was introduced, and that are not necessarily due to the presence of the Internet. Because these have been extensively covered and discussed in the media economics literature we will only briefly mention some of them here. Recent surveys include Gentzkow and Shapiro 2008, Blasco and Sobbrío 2012, Prat and Strömberg 2013. Perhaps the literature coming closest to explaining the types of failures mentioned above, starting with the episode of health hazards of tobacco, is the one on commercial media bias and special interest groups, reviewed mainly in Blasco and Sobbrío 2012. We briefly discuss it further below. Prat and Strömberg 2013 focus on media and politics. Given the large amount of attention devoted to government capture and political media bias in the media economics literature, we will not discuss it further in this *opuscle*.

In an early survey, Gentzkow and Shapiro 2008, study the role of competition and distinguish between supply-driven and demand-driven bias. *Supply-driven bias* originates with the suppliers of news and includes most of the mechanisms or “*filters*” studied in Herman and Chomsky 1988, such as biases originating from the ownership of the media (and its own special interests as well as corporate and governmental links), from advertising, from flak (and the risks of being sued), from career concerns of journalists, from the need to be able to access sources of news, and the many ways in which special interests and public relations can influence coverage on critical issues. On the other hand, *demand-driven bias* is driven by the type of media coverage that is preferred by the consumers, whether for ideological reasons or to confirm

the consumers’ prior beliefs. Gentzkow and Shapiro 2008 conclude that competition is more likely to help mitigate the bias when it is supply-driven; whereas, when bias is demand-driven, competition between outlets and media firms may actually make the bias worse.

**Ownership bias.** An obvious type of supply-driven bias is one that originates directly with the ownership structure of the media firms. Herman and Chomsky 1988, McChesney 2000, and Bagdikian 2004, document how the structure of ownership and the special interests of owners of the media firms may be in conflict with news to be covered by the media firms and how this may affect the coverage on critical topics, from issues concerning media regulation, copyright laws, to international trade agreements and beyond. The size and concentration of media firms, as well as possible government ties, are further important aspects of this channel.

In the media economics literature, Anderson and McLaren 2012 study how media owners with political motives as well as profit motives can influence public opinion by withholding information that is unfavorable to them, provided their motives are not too far from the mainstream. They show that this can happen even with rational readers who understand the media owners’ motives, since readers do not know how much information the media firms have and so do not know when news is being withheld. They find an overall positive role for media competition. On the empirical side, Gilens and Hertzman 2000 provide some evidence that the coverage of the debate on TV deregulation is biased by conflict of interest. Della Vigna and Hermle 2015 find almost no evidence of ownership bias for in-house movie reviews. Durante and Knight 2012 document ownership bias in TV stations during Berlusconi’s years in power in Italy. However, somewhat surprisingly, despite the clear

economic nature of the channel, it has received relatively little attention in the empirical media economics literature.

**Advertiser bias.** Another obvious type of bias is that originating from advertising. Given the large amount of money flowing from advertisers to media companies and the reliance of newsrooms on advertising revenues, this channel of bias has been quite extensively studied. Herman and Chomsky 1988, Baker 1994, and Bagdikian 2004 describe several cases of how advertising influenced or interfered with media coverage on a variety of topics. The case of tobacco is a particularly well documented one with some studies even showing causality of advertising revenues going from tobacco to media industries on the coverage of tobacco-related health diseases (see, e.g., Chaloupka and Warner 2000).<sup>15</sup>

In the media economics literature, a number of papers have studied different aspects of this channel. In Gabszewicz, Laussel and Sonnac 2001, media outlets are funded by advertising, which in order to maximize advertising revenues, provide a politically moderate news coverage. Their equilibrium converges to what they call the “*pensée unique*.” Ellman and Germano 2009 study news that might be sensitive to advertisers. They show how news-sensitive advertisers can influence news coverage to their advantage by threatening to withdraw their ads from individual media outlets or firms in case of too “unfriendly” coverage. Competition in the media market is generally beneficial for the quality or accuracy of coverage. Similarly, Germano and Meier 2013 study media firms that internalize the effect of their coverage on advertiser sales and hence also on their own long-term advertising revenues. They also obtain a strong negative effect of media concentration on the quality of coverage and further show that increasing the number of subsidiary outlets owned

by a media firm, while keeping the overall number of media firms fixed, may further reduce the quality of news reported on topics sensitive to advertisers. This is because media firms may increase their local monopoly power when expanding the number of media outlets owned. Blasco, Pin and Sobrrio 2016 study a model where advertising companies with varying degrees of sensitivity to news can compete with each other and pay media firms in order to get more favorable coverage. They find that competition in the product market need not prevent commercial media bias, and show that the extent of the bias depends on the correlation in the quality of the advertising companies’ products. When the correlation is high and the advertising firms have similar sensitivities, bias is expected to be larger.

On the empirical side, a number of papers have appeared recently in media economics that have found significant effects of advertising on media coverage on a number of different topics from financial advice (Reuter and Zitzewitz 2006), corporate evaluations (Gurun and Butler 2012, Focke, Niessen-Ruenzi and Ruenzi 2015), car evaluations (Dewenter and Heimeshoff 2014), and scandals involving government officials (Di Tella and Franceschelli 2011). Some have studied how advertising can lead to generally more positive (or less negative) coverage of specific firms (Rinallo and Basuroy 2009 and Gambaro and Puglisi 2015); Wilbur 2008 shows how TV network program choices are influenced more by advertiser preferences than by viewer preferences.

**Special interests, public relations and sourcing.** An important source of bias that is often invisible to the general public is that originating from lobbies, special interest groups and which passes through public relations specialists. While advertising revenues to newspapers and the number of journalists working in newsrooms have

been decreasing steadily over the last decades, the amount of money spent on public relations and the number of specialists working in public relations has increased. As a result, in the USA, for example, the number of PR specialists per reporter grew from 1.2 in 1980 to 3.2 in 2004 up to 4.6 in 2013 (*Pew* report 11/08/2014). McChesney and Nichols 2010, p. 48, comment that, “*as editorial staff shrinks, there is less ability for news media to interrogate and counter the claims in press releases.*” For example, a recent study of health-related news found that half of the stories examined relied on a single source or failed to disclose conflicts of interest from sources and concluded that, “*for certain information, reliance on a news release is appropriate. However, journalists are expected to independently vet claims*” (Schwitzer 2014). This makes it easy for the messages of special interest groups (which often simply introduce doubt to marginalize opinions critical to their interests) to become part of the general debate. Davies 2009 describes similar trends in UK journalism. In the media economics literature, Shapiro 2015 studies special interest groups that can send biasing signals to journalists, who in turn decide whether or not to report the signals. The paper shows that journalists’ reputational concerns (showing that they are not “captured”) can contribute to having the (biasing) special interest groups’ views represented. He uses his model to explain the observed “balanced reporting” on climate change in US mainstream media. Besley and Prat 2006 and Corneo 2006, study media capture by governments or other special interests groups. They show that concentrated news media markets are easier and cheaper to capture than less concentrated ones.

As mentioned above, journalists increasingly rely on official sources for the content of their stories. This allows them to be both objective and to cut costs. In order to maintain access to such sources, they may prefer to give them a neutral or

favorable coverage. Manning 2001 documents that some 50-75% of news stories originate from public relations sources (see also Manning 2013 for how this may have played a role in the coverage of the global financial crisis). Garcia-Pires, Kind and Sorgard 2012, explicitly model the relationship between news sources and media outlets as a repeated game interaction. More patient media outlets are more willing to bias in favor of news sources in order to maintain the relationship, but are under pressure to reveal more information if demanded by the audience. The effect of competition is not clear-cut. In some cases it may benefit news sources and in others it may contribute to revealing more information.

**Flak and journalists’ career concerns.** Biases in coverage deriving from flak or the fear of journalists or editors being sued are well documented in the journalism and media studies literature. Lewis 2014 describes some cases involving the tobacco industry (e.g., an actual \$10 billion lawsuit as late as 1994 by *Philip Morris* against *ABC* for certain *Day One* segments against tobacco that had already been aired, apparently with the objective of stopping a further potentially even more damning show “*Tobacco under Fire*” from being aired); Herman and Chomsky 1988 and Oreskes and Conway 2010 have more examples. A few papers in media economics have looked at how journalists’ incentives may affect their writing. Baron 2006 shows that media bias can persist even in competitive media markets due to the incentives for career-oriented journalists to write sensationalized stories. As mentioned above, Shapiro 2015 shows how reputation concerns of journalists may lead to underreporting on issues that are important to special interest groups. Andina-Díaz and García-Martínez 2016 show that reputation concerns especially in high quality news outlets may make journalists overly careful in reporting topics that can draw attention and public concern,

and can therefore lead to increased awareness and scrutiny from interested parties. Consistent with this theory, important scoops are often reported by less reputable outlets, where more reputable ones preferred to remain silent.

A related theory of media bias deriving from journalists' incentives and their working environment is the one based on Bourdieu's general sociological theory of fields (Benson and Neveu 2005). This theory studies social systems that are made up of (partly hierarchically organized) fields determined by social, economic and cultural forces that put the different individuals within a field in conflict and competition with each other. Thus certain biases favoring access as opposed to accountability journalism (see Section 2.6 above) may be explained by studying the "*journalism field*," since, as Starkman 2014, p. 141, puts it, "*nearly all advantages in journalism rest with access. The stories are generally shorter and quicker to do. Further, the interests of access reporting and its subjects often run in harmony.*" The theory can also be used to explain certain biases favoring owners, advertisers, important news sources, or other powerful special interest groups.

**Demand-driven bias.** Especially the media economics literature has emphasized the importance of readers demanding slant. That is, readers may not necessarily always value accuracy. For example, readers may have a preference for reading news stories that confirm their priors or ideological viewpoint. Several models have been proposed to study the implications of this (Mullainathan, Shleifer 2005, Gentzkow, Shapiro 2006). Typically, competition does not help to increase the accuracy of information in the news. For example, Mullainathan and Shleifer 2005 show how competition can lead to an even more polarized, and in some sense, more biased news coverage. On the empirical side, Gentzkow and Shapiro

2010 study political bias and find very little supply-side bias in daily local newspapers in the USA, whether at the outlet level or at the firm level. However, they do find that coverage is driven to a significant extent by the political preferences of the readers in the different regions. We will come back to demand-driven bias in the context of new media in Section 3.3.

Both supply-side and demand-side biases are still present and continue to play a role in mainstream news coverage today, whether online or offline. They played a role in the pre-Internet coverage of health hazards of tobacco, and they continue to play a role in the later episodes mentioned above. An important question is how their influence on coverage has changed with the Internet and the possibilities offered by the new media. In the next section, we look at biases originating specifically with new media such as biases deriving from the use of search engines and social media.

### 3.3 New media biases

Many or most of the pre-existing traditional media outlets continue to exist in the traditional format, but they typically also have a presence on the Web. These traditional outlets or firms have often been able to maintain and transfer their pre-existing reputations and visibility to their online sites. At the same time, many new websites have appeared on the Web, whether search engines, weblogs, news aggregators, social networks, or other online platforms. These have added to the supply of potential news outlets as well as to the modes of accessing news. They provide alternatives to consuming traditional news media.

However, while the same mechanisms that affect traditional media can in principle also affect new media, they may be potentially mitigated or circumvented by the possibilities offered by new



media. A novel aspect of media online is the low cost of entering the market. This in principle allows for plurality and competition. However, as some of the empirical literature shows, having a website and getting traffic on it are different things. More recently the literature has studied more carefully at the new media available and their role in reducing old biases but potentially also in generating new ones. We discuss some of these now.

**Search engine and ranking bias.** Search engines are central to the Internet and its architecture. They are an almost required entry point into the infinite amount of information available online, including daily news. In many cases, the dominating market structure is that of an essentially single or monopoly search engine funded by advertisers. *Google* is clearly a dominant player in this market. As Burguet, Caminal and Ellman 2015, argue, “*with market shares exceeding 90% in most European countries and a global average above 80%, Google arguably dominates online search in most of the world.*”

A key concern is that the search engines may bias their search results in order to affect traffic and advertising revenues. This may lead websites to direct consumers away from their “ideal” website. Hagiu and Jullien 2011 study how an intermediary monopoly platform (such as *Google*) can have incentives to divert search and how this can be driven by the revenues derived from (large) sponsors or advertisers; Hagiu and Jullien 2014 look at the case with competing platforms. De Cornière and Taylor 2014 study bias originating in content search, where they focus on the case where the search engine competes with the content providers for advertising revenues; in some cases the search engine may even own a content provider. Burguet et al. 2015 develop a general model where search engines can simultaneously rank both content and consumer products, both

of which are of interest to the consumers. They allow for two types of search results, namely, organic and sponsored, which allows them to study several types of sources of distortions as well as crucial spillovers across markets. They show that distortions can be welfare-improving if the incentives to distort sponsored search are larger than those to distort organic search results; but they can be welfare-reducing in the opposite case.

More recently, Germano and Sobbrío 2016 develop a model to evaluate the ability of a (monopoly) search engine to aggregate information dispersed across individuals and media outlets.<sup>16</sup> They consider a stylized dynamic setting that abstracts from the type of advertiser or other biases studied in the search diversion literature just mentioned and focus instead on key features of the search engines’ ranking algorithm and its interplay with individuals’ online search behavior. They show how empirical regularities found in the literature (e.g., Hindman 2009, Gentzkow and Shapiro 2011) such as high concentration at the top, or long-tail distribution of audiences, are easily generated under relatively weak assumptions.<sup>17</sup> In particular, audiences may quickly concentrate on few outlets carrying equal quality or even inferior information. They also show how audiences may be segregated through the possibility of search engines to personalize the search results to characteristics of individuals. Importantly, the presence of behavioral biases on the part of the consumers such as search costs, confirmation bias, and a preference for like-minded news, can further aggravate the results leading to polarization of individuals’ opinions and concentration of audiences on sub-optimal outlets.

**Information abundance and limited attention.** An almost defining aspect of the Internet is the virtually infinite amount of information that can be accessed, mostly for free. At the same

time, individuals do not have the time to consume or even process it all. While search engines can help to localize information, news media outlets continue to play a key role in filtering new information and presenting the most relevant news to the public. Motivated by this, Alaoui and Germano 2016 study a model where media outlets rank the news items of the day, and where time-constrained readers browse through the news items displayed on the different online and offline outlets. This allows them to model both the abundance aspect as well as the time costs involved in consuming news. Among other things, they show how the costs of processing information (of reading news stories, skipping stories, switching outlets, or viewing forced ads) can affect how news is ranked in equilibrium and what is ultimately read. In their model, bias occurs from a fundamental misalignment between the objectives of the media firms and the readers, whereby media firms want to maximize the number of stories read (and ads viewed) while readers are interested in maximizing utility from reading entertaining and newsworthy stories but minimizing costs of processing news. This can lead readers to spend more time consuming news than they would like to, and more importantly, they may not end up reading the stories they originally would have wanted to read. That is, there is a crowding out effect, whereby readers may be underinformed on topics that they consider more important but overly informed on others. This is in line with recent findings of *Pew* report of 8/8/2013, according to which 65% of Americans state that “*news organizations focus on unimportant stories.*” In a version of the model that allows for (forced-view) advertising, Alaoui and Germano 2016 show that advertising can further contribute to crowding out important stories. A further aspect highlighted by their analysis is that online news outlets, to the extent that they have lower costs of skipping uninteresting news items, may lead readers to switch from tra-

ditional media types such as broadcast or cable television and radio to online news. To some extent this allows the readers to circumvent some of the inefficiencies generated by some of the traditional media platforms with potentially higher costs of processing news. Empirically, Eisensee and Strömberg 2007 show that attention-grabbing events, such as Olympic games, can crowd out the coverage of other events such as natural disasters, which in turn can affect policy decisions. Durante and Zhuravskaya 2016 show that politicians may even plan and select the timing of certain policies around such attention-grabbing events.

A further implication of the analysis of Alaoui and Germano 2016 is that the presence of a strong public media firm that takes seriously the interests of the general public can act, through its programming, as an important disciplining device for all other private media firms. To the extent that there is a low cost of switching to the public outlet, the difference in quality between the public and the commercial outlets cannot be too large if the commercial outlets want to retain their audiences. We believe this can explain some of the differences between the provision of broadcast news, for example, between Europe and the US as discussed in Section 3.5.

**Information aggregation through social media and social networks.** The enormous potential of the Internet to link almost unbounded numbers of people from all over the world and to allow them to communicate, create and discuss content on centralized platforms is a key aspect of the new media environment. Benkler 2006 already pointed out many of the possibilities for information sharing and social production of information among other things. Increasingly more people get their news through social platforms such as *Facebook* and *Twitter*. A recent *Pew* report (of 12/22/2015) shows that meanwhile about

60% of millennials (born between 1981 and 1996) get their news about politics and government from *Facebook*, as opposed to 39% baby boomers (born between 1946 and 1964), thus slowly replacing *Facebook* with local TV news as main sources of news. In our context of understanding some of the media failures of Section 2, we again point out that several of the mechanisms discussed above, whether ones of traditional media biases or the ones discussed in the context of search engines or of information abundance and limited attention, also apply to information obtained on social media platforms. A recent paper by Mueller-Frank and Pai 2014 studies learning on social networks such as *Facebook*. They show that, a social platform that can decide how much information to display, can, in equilibrium, limit the amount of information provided relative to first-best in order to increase advertising revenues. In particular, they show that decreasing organic or unpaid social information and limiting the total amount of social information users have access to increases the firm's advertising revenue. This can result in lower quality of information held by the public and hence suboptimal decisions made.

At the same time, a large literature already exists in economics that studies learning and information aggregation on social networks (see, for example, Acemoglu and Ozdaglar 2011 for a survey). This literature has addressed several important aspects of the social learning problem, identifying basic characteristics such as the prior beliefs, the sources of information available, the rationality and details of how individuals process information, as well as the structure or evolution of the underlying communication network as important determinants of the overall opinion formation problem. Clearly, the different underlying assumptions can affect how information is aggregated and whether consensus is achieved, to what extent there will be social learning in the aggregate, and whether

special interest groups or individual news sources can manipulate the learning process and lead to misinformation in society. This is still a very active field of research and more work is needed to match the theoretical results obtained to empirical models of opinion formation about the news.<sup>18</sup> For our purposes, it is important to understand both the conditions leading to consensus and learning of the truth as well as those leading to polarization and misinformation. Given the increasing importance of platforms such as *Facebook* and *Twitter* as sources of information, this literature will play and increasingly important role in understanding the quality of information held by the general public in the Internet age.

### 3.4 Putting things together

The main objective of this *opuscle* was to understand possible obstacles for the quality of information held by the general public on key issues of public concern in the current Internet age. We believe that all the pre-Internet mechanisms —what we call the traditional sources of bias, discussed in Section 3.2 above— are still at work. Thus mechanisms such as ownership bias, advertising bias, flak, source and public relations driven bias, as well as demand-driven bias all continue to influence the way news is produced and hence also which news reaches the general public. Many, if not all of these biases, carry over to online news outlets. Moreover, as discussed in Section 3.1, a large majority of the news still originates in traditional news media. The stronger budget constraints facing such media firms due to lost advertising revenues have shrunk their newsrooms and made them even more dependent on advertisers, thus further reducing their capability to critically examine the wealth of information made available by “official sources” and public relations specialists.

At the same time, given the abundance of information, ranking of news items and of news outlets has become a central aspect of news consumption on the Internet. As discussed in Section 3.3, ranking of news outlets tends to occur through companies that are often local monopolies and that are not immune to some of the key traditional biases such as ownership and advertising bias (Burguet et al. 2015, Mueller-Frank and Pai 2014). Moreover, when combined with behavioral aspects of how consumers process news such as attention bias, confirmation bias, and search costs, audiences relying on search engines that rank websites will tend to concentrate on relatively few websites, potentially to the detriment of better quality ones (Germano and Sobbrío 2016). It is difficult for websites to obtain visibility. And, while it has become cheaper to set up websites that can report correct information, it has also become cheaper to set up websites that report wrong or misleading information. Given potential asymmetries of funding of websites due to vested interests on a variety of key topics of public concern, it is not guaranteed that the high quality websites will obtain the visibility they deserve (Shapiro 2015). Thus, to the extent that doubt or awareness is what prevents the general public from learning basic facts, we conclude that the problems that were present prior to the Internet need not necessarily disappear in the Internet age, especially as far as the quality of information held by the general public is concerned. This can occur even when there is an abundance of high quality websites such as on topics ranging from healthcare, climate change, financial regulation and so on.

Thus, especially on topics where it is not immediately visible to the general audience, which websites hold the correct information, and especially when there are (few) special interest groups for which large amounts of money are at stake, we expect accurate coverage of the issues to be

delayed. Most of the media failures discussed in Section 2 share these features. On such issues, we expect the public to be poorly informed—relative to what is known—about policy relevant details. As a result, we believe this can contribute to ultimately delaying the adoption of meaningful policy responses.

### **3.5 Policy implications and the role of public media**

A rapidly expanding literature in communications, journalism and media studies has looked at international comparisons of media systems (Aalberg et al. 2013 and Cushion 2012 contain recent overviews; see also Benson and Powers 2011 and Aalberg 2015 more specifically on public media). The objective of this literature is to understand news media operating in different countries and under different types of media ownership structures and regulatory systems, and to assess how the overall media system can influence the level of knowledge and quality of information held by the general public. While there is a wealth of results and observations, a finding that is shared by several of the studies, that focus on advanced democracies, is the role of public service media as a key contributor to higher levels of awareness, political knowledge and literacy held by the general public. For example, Aalberg 2015 summarizes: “*citizens are more likely to be exposed to hard news and be more knowledgeable about current affairs if they watch public service news, or news in public service dominated media systems, compared to market-driven news environments.*” Aalberg et al. 2013 also remark: “*the flow of political information through TV varies according to the degree of commercialization. The flow of news and current affairs is lowest in the most commercially oriented television system and among the commercial TV channels.*”

This is not inconsistent with some of the biases presented in Section 3.2 and 3.3, especially the ones of ownership and advertising bias, or the one on information abundance and limited attention, which to a large extent originate from the commercial nature of media firms. Such biases can be mitigated by strong and independent public media. Clearly, the details of how public media are funded, how the directors are nominated, how they are regulated to represent the public, etc., all matter. Soroka et al. 2013 further remark: “*compared to commercial news, PSBs [Public Service Broadcasters] have a positive influence on knowledge of hard news, though not all PSBs are equally effective in this way. Cross-national differences are related to factors such as de jure independence, proportion of public financing and audience share.*” The presence of strong and independent regulator and public broadcaster can hold commercial broadcasters to higher standards, for example, Aalberg 2015 summarizes: “*Commercial broadcasters clearly provide the citizens with more news opportunities if they need to comply with certain regulations and compete with a relatively strong public broadcaster.*”

A natural policy that emerges from this literature includes strengthening public service media and regulation. Providing public service broadcasters with long-term funding, which ideally allows them to minimize dependence on advertising revenues, protects them from political pressures or funding losses due to critical news coverage, and allows them to maintain strong visibility, may be a necessary measure. More generally, related proposals entail public funding of non-commercial or non-profit journalism and news providers or setting up national endowments for public service media to ensure their long-term financial independence (again, the details of the allocating mechanisms are crucial).

Moreover, as seen in Section 3.3, ranking algorithms increasingly play a central role in the current news media landscape. Given this centrality, and given the monopoly position of search engines such as *Google* (but even the in social media such as *Facebook*), it seems natural to consider regulating the algorithms, in the sense of providing some basic guidelines that maintain a high standard of functioning in the public interest. In fact, it is not inconceivable to consider setting up public interest search engines for specific types of searches that may suffer from some of the biases discussed in Section 3.2 and 3.3.<sup>19</sup>

## 4. Conclusion

We started this *opuscle* with some examples of media failures. In the first one, perhaps the best documented example, on the health hazards of tobacco smoking, an important element of the failure was the creation of a parallel and controversial storyline, essentially that there was no serious proof of health hazards originating from smoking tobacco. The actual facts were well understood by specialists since the 1950s and earlier, and were available on more specialized outlets such as medical journals in the UK and USA.<sup>20</sup> Yet mainstream coverage in newspapers, TV, and radio barely reported on this, so that, still in the 1970s and 1980s, outlets like *Time* or *Newsweek* could run cover stories specifically on the “causes of cancer” without or barely mentioning smoking of tobacco as a cause of cancer (see Baker 1994, Bagdikian 2004, Lewis 2014; Proctor 2015 discusses the current situation). Such deficient coverage significantly delayed awareness of the seriousness of the health hazards in the public’s mind.

We also considered six further examples of media failures that occurred during the Internet age, such as the coverage of anthropogenic climate change or health care reform in the US. We focused on such failures in order to better understand possible limits and deficiencies of the current news media landscape to inform the general public on important public affairs issues. As the examples make clear, the huge potential of the Internet, with the infinite amount of information available, the enormous possibilities of accessing and setting up websites, and communicating across the planet in ever increasing networks, does not by itself guarantee a high level of information held by the general public on such important issues of public concern. In this sense, the anticipated promises of the Internet have not all been realized yet.

We then discussed several channels that have been studied in the media economics and communications literature that help explain the media failures. Some of the central channels identified include ones that were already present before the advent of the Internet, such as advertising, ownership or sourcing biases, which can also affect online platforms, besides the traditional media. Some of the more recent channels are associated with the central role that search engines and ranking algorithms play in the new media landscape. There seems to be a tendency of platforms ranking outlets and news items to concentrate audiences on few websites. This can occur to the detriment of smaller independent websites even when they contain superior information. At the same time, revenues that once went to news media companies have shrunk substantially. To an important extent such revenues have gone to online companies such as *Google* or *Facebook* that do not really produce news. Many of the developments discussed suggest that special interests can be very influential, perhaps excessively so, in shaping public opinion.

Our conclusion from the discussion of the media failures and their sources is that, despite major technological advances, there are still many reasons to be concerned about the quality of information held by the general public on key issues of public concern, in advanced democracies of industrialized countries. Given the relevance of economic factors playing in the failures, we believe this is still a very important topic for continued research in media economics, both at the empirical and at the theoretical level. More work is needed to identify and quantify serious media failures and their sources, ideally across countries. Hopefully this will help to design better performing news media landscapes that are essential to the functioning of democracy.



## Notes

(1) *The quote continues:* “Doubt is also the limit of our ‘product.’ Unfortunately, we cannot take a position directly opposing the anti-cigarette forces and say that cigarettes are a contributor to good health. No information that we have supports that.” *Cited from Lewis 2014, p. 124.*

(2) *Cited from McClesney 2000, p. 120.*

(3) *Copps 2014, p. 2.*

(4) *Interestingly, the number varies strongly by ideology, ranging from 15-35% of conservative-moderate republicans believing warming is caused by human activity to 55-76% of moderate-liberal democrats believing the same. See also Plutzer et al. 2016, who show how, still in 2015, over 30% of US teachers who teach climate change “report sending explicitly contradictory messages, emphasizing both the scientific consensus that recent global warming is due to human activity and that many scientists believe recent increases in temperature are due to natural causes.”*

(5) *An example is provided by computer security expert, Ross Anderson, who, after carefully studying the entire University of Cambridge computer system, issued a report, which documented how the risks associated with the millennium bug were well below what was being announced in the press. The press release was sent to over 900 media organizations yet only 2-3 radio stations reported on it (Fry “In the Beginning was the Nerd,” Archive on 4, BBC Radio 4, 10/3/2000); even Bill Gates who was among the most “reviled of the Y2K deniers” got little attention (Dutton “It’s Always the End of the World as We Know It,” New York Times, 12/31/2009).*

(6) *For example, former UN weapons inspector Scott Ritter openly declared in a speech in Hyde Park, London, on 28 September 2002, concerning UK Prime Minister Tony Blair’s document on Iraq’s military capabilities that was used as a case for war: “Mr Blair [...] I say this to you, this document is not a case for war, this document is not worth one drop of blood from an American soldier, a British soldier or an Iraqi civilian.” Ritter’s and other UN inspectors’ reasons for doubting the evidence that was being presented received very little coverage in the US mainstream media.*

(7) *Iraq Body Count puts the number of documented civilian deaths at over 155,000 and the number of total violent deaths including combatants at over 240,000; Stiglitz and Bilmes 2008, put the total cost of the Iraq war at \$3 trillion.*

(8) *Fz(9) For example, Thompson, “Why is American Health Care So Ridiculously Expensive?,” The Atlantic, 3/27/2013,*

(10) *For example, the mainstream media coverage of the report mentioned above by Woolf and Aron 2013 was close to nonexistent. A rare exception, Health News from NPR,*

*“US Ranks Below 16 Other Rich Countries in Health Report,” January 2013, has a population health expert, David Kindig, who comments on the study saying: “It’s not like we haven’t known some of this yet, but it hasn’t penetrated —how serious it is. [...] I hope that [the report] would be a wake-up call [...].”*

(11) *Ehrenreich, “The Medical-Industrial Complex,” New York Review of Books, 12/17/1970.*

(12) *For example, Relman, “Health Care: The Disquieting Truth,” New York Review of Books, 9/30/2010, or Relman, “The Health Reform We Need and Are Not Getting,” New York Review of Books, 7/2/2009. To get a sense of some of the special interest groups benefiting from the status quo, see Tomasky, “The Money Fighting Health-Care Reform,” New York Review of Books, 4/8/2010, or Eaton, Pell, and Mehta, “Washington Lobbying Giants Cash in on Health Reform Debate,” Center for Public Integrity, 3/26/2010.*

(13) *At the same time, for example, Google’s advertising revenues have been increasing steadily from less than US\$100 million in 2001 to over US\$67 billion in 2015; Facebook’s revenues have also increased steadily from less than US\$800 million in 2009 to over US\$17 billion in 2015. Some of these revenues have clearly been subtracted from the news media industries.*

(14) *Jones 2009, p. 3–4 mentions similar figures. Cagé et al. 2015 study the production of news in France in 2013, and confirm the importance of journalists and the size of newsrooms for the production of original news content. They also single out AFP (Agence France-Presse) as a key producer of original content, which they say initiates 33% of the news, and which has at least one dispatch present in 86% of reported new events.*

(15) *Clearly, as discussed in Ellman and Germano 2009 and Petrova 2011, advertising may also be beneficial in providing funding for independent and higher quality journalism.*

(16) *While there is a rather large literature outside of economics studying the implications of search engine’s architecture on information and democracy (by communication scholars, media activists, political scientists, sociologists, psychologists and last but not least computer scientists), it is still relatively little studied in economics. See also Germano and Sobbrío 2016 for more discussion.*

(17) *Weeds 2012 provides an alternative explanation of what she calls “superstars” and the long tail, namely, through the lower fixed cost of production, which can moreover stimulate investment in premium or high quality products.*

(18) *Meanwhile a rapidly growing literature exists that estimates empirically social learning models in different fields of economics such as, for example, Munshi 2004, Bandiera, Barankay and Rasul 2009, and Banerjee et al. 2013, for*

labor markets, technology adoption, and microfinance respectively.

(19) *Some have gone as far as arguing in favor of nationalizing Google and other monopoly platforms in order to preserve as much as possible their public-interest function* (McClesney 2013; see also Schiffrin 2010).

(20) Doll R, Hill AB (Sep 1950) "Smoking and carcinoma of the lung; preliminary report," *British Medical Journal*, 2 (4682): 739–748. Doll R, Hill AB (Jun 2004) "The mortality of doctors in relation to their smoking habits: a preliminary report. Reprint from 1954," *British Medical Journal*, 328 (7455): 1529–33; discussion 1533. The latter is a reprint from the BMJ of 1954, where some 40,000 doctors in the UK reported about effects on lung cancer from their own smoking habits, and confirming the link

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