

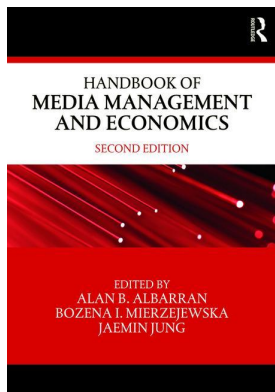
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Publisher: *Routledge*

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Handbook of Media Management and Economics

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Evolving Research and Theories in Media Economics

Publication details

<https://www.routledgehandbooks.com/doi/10.4324/9781315189918-3>

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Published online on: 13 Apr 2018

How to cite :- Brendan M. Cunningham. 13 Apr 2018, *Evolving Research and Theories in Media Economics from:* Handbook of Media Management and Economics Routledge

Accessed on: 16 Jun 2021

<https://www.routledgehandbooks.com/doi/10.4324/9781315189918-3>

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EVOLVING RESEARCH AND THEORIES IN MEDIA ECONOMICS

Brendan M. Cunningham

In 1951 Kenneth Arrow published the first formal proof of the first fundamental theorem of welfare economics (Arrow, 1952). This theorem states that a competitive market equilibrium is Pareto optimal. That is, perfectly competitive markets give rise to an outcome which cannot be improved upon without reducing the welfare of someone in the economy. In this sense competitive outcomes are socially efficient. Whether this result obtains in reality depends upon whether reality is well represented by the conditions upon which the theorem is predicated. Prominent among these conditions is the presence of perfect information in markets.

Information is predominantly supplied by media industries, broadly defined. The Internet, newspapers, television, radio, books, and telecommunications provide a vast amount of details regarding a wide host of topics and events. And effective performance of media industries, as primary suppliers of information to consumers and firms, is a precondition for markets to deliver socially desirable outcomes. Any shortcomings in media industries will necessarily imply that subpar information is available to the economy.

Imperfect information gives rise to numerous distortions and market failures. Examples include adverse selection (Akerlof, 1970), in which a market fails to provide high-quality goods. Suppose that the quality of a product cannot be ascertained in advance but everyone knows that there are as many low-quality “lemons” (valued at 1) in the market as there are high-quality products (valued at 10). Consumers will be willing to pay only 5.5 for the product, which is the value of lemons averaged with the value of quality products. Poor information does not allow buyers to ascertain product quality, which reduces prices. But then sellers of high-quality products are unwilling to sell at this low average price of 5.5, so they exit the market. As a consequence, only low-quality lemons are traded on the market. The advent of the Internet has significantly resolved this information-driven market failure. User-generated reviews of products and services, as well as widespread availability of seller ratings and media stories about a product, provide buyers with a host of information regarding quality. There are even services which evaluate the quality of reviews themselves and signal whether sellers are falsifying those reviews. For example, see fakespot.com, which employs a machine learning algorithm to identify low-quality Amazon reviewers by examining how many reviews they have submitted and whether multiple reviews use the same language and grammar to describe a product. That is, adverse selection in the quality of information itself is addressed by the Internet.

A second common information failure in markets is moral hazard, which occurs when inadequate information following a transaction induces a party to behave “immorally,” or in a manner inconsistent with the terms of the transaction (see Arrow, 1965, for the earliest formal discussion of this

problem in the economics literature). For example, a car driver might drive irresponsibly once s/he is covered by automobile insurance because the cost of an accident accrues to the insurer. Or in service industries, the quality of a given employee's effort at work is often unobservable because the product is difficult to quantify and it is the result of group effort. This can induce an employee to offer inferior effort on the job. Social media posts have been used by employers to identify employees who are not exerting the quality of effort which is expected of them as part of their employment. Williams (2015) reports numerous instances in which social media posts by employees, both on and off the job, lead to firing. Wysochanski (2016) reports on the case of a college professor who was fired by a board of trustees for posts she made to her Facebook page. Information revealed through newer forms of media is increasingly addressing moral hazard in labor markets, thereby enhancing the efficiency of those markets. Additional information technologies can be used to address moral hazard. For example, automobile insurers are now providing discounts to drivers who allow them to monitor their driving behavior through computerized car systems (see Lieber, 2014).

It is worth noting that the term "media" has two definitions: (1) the industry that facilitates mass communication and (2) an intermediate layer or intervening substance. The media industry simultaneously embodies both of these concepts. Media firms serve as an intermediate layer between numerous constituencies as they facilitate mass communication. From an economic perspective, media firms have traditionally operated as part of a two-sided (or perhaps multisided) market. See, for example, Rochet and Tirole (2003) for one of the earliest discussions of such markets. That is, there are almost always two types of customers in media markets. For example, newspapers and magazines will typically charge a per-issue or subscription price to readers but they will also sell print space to advertisers. In the United States, traditional radio and television broadcasters still cultivate an audience but that audience does not pay for content. Instead, radio and television revenue is largely derived from advertisers. In certain circumstances there are additional sources of revenue. The public may provide a subsidy to broadcasters in the case of certain media firms. Alternatively, individuals and firms might donate to a broadcaster. There are other media industries, though, which do not feature multisidedness.

There are a host of nuanced issues in two-sided markets. Should a firm lower the price it charges consumers, thereby sacrificing revenue, in order to expand its audience and draw more advertising revenue? How does disutility from advertising impact audience size and revenues from consumers? What is the nature of advertising and how does it impact product markets and consumers? Government policy is particularly challenging in two-sided contexts. A merger could potentially lower prices for consumers but raise prices for advertisers, who in turn might mark up prices on their own products and reduce consumer welfare. These and other issues have been, at least partially, addressed by a fairly sizeable literature.

Increasingly, though, the Internet has destabilized the traditional function of media firms as intermediaries facilitating communication. In the past, the roles of producing information and distributing it were vertically integrated by media firms. For example, a radio station would hire staff to produce programming and gather advertising while also operating broadcast facilities while holding a spectrum license. The Internet has emerged as an alternative distribution mechanism for all forms of media with a variety of convenience and cost advantages, thereby casting a shadow on the viability of the traditional vertically integrated model. For example, podcasting serves as a competitive alternative to the incumbent approach of radio broadcasting.

The Internet has also drastically altered the advertising market. Prior to the Internet, the minutes of television and radio broadcasts, as well as the column inches available in newspaper and magazines, were in finite supply. A given number of firms, with a capital stock which was expensive to expand, could send out only a certain amount of information. This implied that the "space" available to advertisers had an inherent scarcity and, therefore, value. Such scarcity was essentially eliminated by the emergence of the Internet in that a comparatively immense volume of column inches, or video

and audio, can be supplied at much lower cost. Consequently, advertising is a far less secure source of income for traditional media firms and many have struggled to stay solvent in the new environment.

Moreover, widespread availability of the Internet has lowered barriers to entry in media industries. Creation and distribution of information have historically involved significant fixed costs, costs which could be covered only by raising significant financial capital. Modern information technology and networks allow cheap information distribution and have radically reduced fixed costs. Consequently there is an increasing disintermediation of information flows between producers and consumers. Blogging, podcasting, online video delivery and the like allow almost anyone to create and distribute information for an immense audience at minimum cost. As mentioned earlier, these disintermediated forms of publishing provide advertisers with an “embarrassment of riches” in terms of venues for their material. In such a highly competitive environment there is a far greater role for systems which assist consumers in their pursuit of particular information or entertainment. Providers of those systems, such as Google, have been immensely profitable at a time when the fortunes of traditional media enterprises have largely been in decline.

In what follows the existing literature on various aspects of media industries will be described. It begins with a discussion of the fundamental economic role of media. It will then turn to issues associated with the production and consumption of advertising and content. The political impact of media has emerged as an increasingly important topic and this branch of the literature will be discussed next. Finally, policy issues in media industries, including regulation, and the law and economics of the media will be addressed. For each of these topics the impact of the Internet and open research questions which might shape future research will be discussed. A conclusion which seeks to summarize the overall state of the literature and potential overall trends in media economics scholarship will be also offered.

The Economic Role of Media

In perhaps the first explicit paper on media firms, Steiner (1952) offered an analysis of the type of information which radio broadcasters would offer to audiences. The central focus of his efforts involved an analysis of how market structure might alter the variety, or diversity, of information offered to audiences. His analysis suggested that a competitive market structure would involve each broadcaster pursuing a “business-stealing” strategy in which firms would attempt to garner more audience by duplicating the output of their competitors. The end result would be a relatively homogeneous supply of information by broadcasters. In contrast, a monopoly broadcaster would avoid this competitive arms race to steal audience and simply capture the whole market by catering to heterogeneous preferences and maximally differentiating its offerings. The availability of a diverse portfolio of information can have a significant impact on consumers and firms. In an environment characterized by uncertainty, the type of information which will be of value to consumers is largely unknown.

While media may provide at least part of the information which underpins markets, a vast amount of information is provided by firms themselves through advertising. Telser (1964) notes that advertising serves as a means of informing consumers about the availability of products and the characteristics of those products. In this sense advertising can serve to enhance competition in markets. However, a market which requires significant advertising expenditures on the part of participants is one which is hard to enter. In this sense advertising can serve as a barrier to entry and lower competition.

Comanor and Wilson (1979) offer an extensive discussion of the relationship between advertising and competition. They describe theories in which advertising can impact the elasticity of demand for a particular product, thereby inducing a change in pricing and profits. The empirical evidence regarding the impact of advertising on pricing, competition, and demand elasticities, at that point, was mixed. In part this ambiguity was driven by difficulties in determining causality between

advertising and equilibrium outcomes in markets. Becker and Murphy (1993) provide a highly novel model of advertising and its impact on consumers and the market for advertised goods. The model generates a host of results but their analysis suggests that the most likely role for advertising in markets is that it increases the elasticity of demand while generating profits by shifting the entire demand for a good. Erdem, Keane, and Sun (2008) provide evidence from high-quality microeconomic data which supports this claim for almost all goods they examine. The exception to this finding is ketchup, where the advertising emphasizes horizontal differences in the product. Additional research regarding the competitive impact of advertising is warranted in order to determine whether this result is generalized.

Ippolito and Mathios (1990) present evidence that the benefits of advertising may extend beyond competition. In the market for cereal they establish that the lifting of a government ban on advertising of health benefits led to a diffusion of information about the health effects of consumption choices. Importantly, since advertisements regarding health effects have a very low, or perhaps zero, price for consumers, firms were supplying information that was particularly valuable to consumers with a high cost of information acquisition (perhaps due to education levels or related factors). As a consequence of a rise in advertising, consumers began to make healthier choices regarding cereal consumption. Supply of similar information by the government was not as effective as private advertising. Ippolito and Mathios (1995) document a similar pattern of advertising supplying low-cost and valuable information to consumers which led to the adoption of low-fat diets.

Efforts to quantify the economic impact of non-advertising content are in great need. Sorensen (2007) presents evidence that appearing on the *New York Times* bestsellers list can increase sales of books through a market expansion, rather than business-stealing, effect. Similarly, Pope (2009) shows that published rankings of hospitals have a significant impact on patient demand. Jensen (2007) provides compelling evidence that the general impact of information in markets is significant. He establishes that the diffusion of mobile phone technology on the coast of India changed behavior in fishing industries. Specifically, fishing boat operators in near-shore fisheries could call markets and inquire regarding the prices for different kinds of fish. This allowed effective arbitrage across geographically separate markets and reduced the dispersion of prices. Moreover, waste was reduced since, prior to the availability of mobile phones, boats would often bring their catch to markets with insufficient demand, leading to a wasteful surplus. The introduction of valuable information benefited consumers, intermediaries, and suppliers. That is, it was a Pareto improvement.

Additional market improvements have emerged as a consequence of Internet media firms. More specifically, Internet firms are at the forefront of challenging and replacing traditional market intermediaries. Barber and Odean (2001) document the impact of online brokerages, in which consumers can employ their own information to engage in what is essentially direct trade in assets. This has reduced the cost of market participation through elimination of costly brokerage fees. Autor (2001) describes the benefits from Internet platforms which have reshaped labor markets. A host of web pages have streamlined job searches, hiring, and remote work. As a consequence local conditions and quirks have a smaller impact on the labor market equilibrium (the Winter 2001 edition of *Journal of Economic Perspectives* offers a wealth of material on the economic impact of the Internet). Waldfogel and Reimer (2015) describe the large influx of book titles and a corresponding significant increase in consumer welfare as publishers were disintermediated by online markets and electronic books. In general, media's ability to offer intermediary platforms at much lower costs reduces barriers to entry while increasing competition. This trend is beneficial to both buyers and sellers through reduced transaction costs and fewer frictions. Internet disintermediation began many years ago in numerous markets, which implies that there should be ample data to estimate its numerous welfare effects. Additional effort in this direction would be highly valuable.

Advertising: Fundamental Issues and New Developments

Advertising has long been a mysterious phenomenon, to both economists and market participants. As noted by Jones (1990, p. 234), an early nineteenth-century Philadelphia retailer named John Wanamaker famously observed, “Half the money I spend on advertising is wasted, and the trouble is I don’t know which half.” Bagwell (2007) offers an extremely comprehensive and insightful review of the vast literature on advertising. A summary of Bagwell’s history of thought regarding advertising is as follows.

One of the earliest theories of advertising is the persuasive view, in which advertising alters consumer preferences by creating less elastic demand. This will generally give rise to higher prices if firms have any market power. For this reason, advertising can have effects which seem anticompetitive and implicitly serve as a barrier to entry. As time passed a new thread in the literature emerged, in which advertising played an informational role. Firms employed advertising to notify consumers regarding the availability of products as well as the characteristics of those products. From this perspective advertising allows firms to enter markets and attract consumers who would otherwise purchase from competitors. A third strand of the literature emerged subsequently, in which advertising provided a direct payoff to consumers as a complement to a good that is purchased. Bagwell concludes that empirical efforts to distinguish between the validity of each of these approaches to advertising have found a variety of results. No single theoretical model appears to explain the role of advertising in all contexts.

Rather than repeat Bagwell’s thorough and insightful discussion of the advertising literature, instead the literature on advertising that has emerged subsequent to his effort is described. Unsurprisingly, much of this literature has focused on the structural changes to advertising markets as a consequence of the Internet. Evans (2008) and Goldfarb (2014) note that Internet advertising differs significantly from advertising in other media since detailed information regarding particular consumers can be conveyed to advertisers so that they can “target” their message.

Athey and Gans (2010) provide a theoretical framework for understanding the impact of the enhanced opportunity to target advertisements online. They find that targeting increases the effective supply of advertising (less advertising is “wasted” on uninterested consumers), thereby reducing prices and increasing the return to advertising. Bergmann and Bonatti (2011) find that targeting enhances the social value of advertising but that prices are nonlinear in targeting (first increasing and then decreasing). Athey, Calvano, and Gans (2013) investigate the impact of greater “multihoming” behavior by consumers, where they consult multiple media outlets instead of one, as a consequence of the Internet. They find that even in the presence of tracking technology, multihoming can lead to lower media profits, a result which is consistent with recent financial stress in traditional media.

Advertising markets are also increasingly automated through online transactions which are driven by auctions with dynamic pricing, in contrast to traditional advertising markets. For a thorough and comprehensive review of this emerging issue please see Ma and Wildman (2016), who describe the emergence of online advertising markets, the economics of targeted advertising, search advertising, and auction mechanisms. Further, Edelman, Ostrovsky, and Schwarz (2007) investigate the “generalized second price” auction frequently used by online advertising platforms. They show that truth telling is not an equilibrium in such markets. McAfee (2011) describes how these auctions can be designed to enhance learning about advertising cost and improve the performance of auctions. De Corniere and De Nijs (2016) theoretically investigate the role of information sharing regarding consumers in online advertising transactions. They find that such sharing increases the price of advertised products. In addition, they establish conditions under which sharing is privately and/or socially optimal.

Chandra (2009) provides important evidence regarding the potential impact of targeted advertising. He establishes that newspapers facing greater competition have lower circulation but greater advertising prices, potentially as a consequence of market segmentation and more homogenous subscriber bases. More recently, Zentner (2012) provides international evidence that the diffusion of the Internet has led to lower advertising expenditures in newspapers, magazines, and television. There is no significant impact on radio advertising. Further exploration of this result is warranted in order to establish if this is a consequence of prices, quantity, and/or both. Further, the heterogeneity of the impact across media types is worthy of exploration.

A sizeable literature has also recently investigated traditional advertising markets. For a behavioral approach to non-informative advertising see Brekke and Rege (2007), in which consumers can engage in herding behavior in the presence of advertising. See Banerjee (1992) for an early discussion of herding behavior. When there is imperfect information an individual may become convinced that a group is making a particular decision because it has access to valuable information that the individual lacks. In such a situation the individual may mimic the choice of the group even though that choice runs counter to the information she or he possesses. In this sense the individual is following the group in the same way that an individual animal follows a herd. Such outcomes can lead to inefficiency.

In contrast, Doraszelski and Markovich (2007) offer a unique dynamic model of advertising in which asymmetries and strategic advantages can emerge. Peitz and Valletti (2008) show that in television markets, if consumers do not pay for subscriptions there is greater advertising intensity when consumers dislike ads. Also, without subscription revenues the content of media is less differentiated. Reisinger, Ressner, and Schmidtke (2009) show that in a model with pecuniary externalities advertising can be either a strategic complement or a substitute. Market entry can potentially raise profits and advertising levels. Barigozzi, Garella, and Peitz (2009) analyze the choice between generic advertising, in which a firm promotes its own product, and comparative advertising, in which a firm uses ads to differentiate the quality of its product from that of its rivals. In a related effort, Chakrabarti and Haller (2011) establish that comparative advertising can yield a welfare loss and advertising can impact firms that do not advertise by diverting demand. Crampes, Haritchabalet, and Jullien (2009) establish the relationship between entry, advertising, and subscription revenue. They show that under certain conditions there is an excessive level of entry in advertising markets and an insufficient level of advertising. Saak (2012) offers a model in which a monopolist advertises an experience good to heterogeneous consumers. In this setting advertising is high in the early stages of a product's life as consumers learn about their valuation for the good. While advertising can delay learning, regulations which ban ads can nevertheless reduce welfare.

Numerous empirical efforts have recently contributed to our understanding of advertising. Foremost among these are a number of field experiments. In a retail field experiment, Simester, Hu, Brynjolfsson, and Anderson (2009) find complex dynamic advertising effects in which future sales may actually decrease in response to advertising, particularly for the "best" customers. They also report evidence that consumers switch the sources of their suppliers in the direction of those that advertise. Bertrand, Karlan, Mullainathan, Shafir, and Zinman (2010) find that loan demand was significantly impacted by advertising in a field experiment involving direct mail in Africa. Advertising features were randomized among consumers. While not all aspects of advertising were effective, those that were tended to appeal to a consumer's emotions. For example, including a picture of an attractive woman increased demand for loans.

Anand and Shachar (2011) employ an extremely compelling structural estimation framework in order to investigate the impact of advertising for television programs. They find that an advertisement decreases the likelihood that a consumer will choose her best alternative to the advertised program by 10%. Their approach allows them to distinguish between the direct impact of advertising

on consumers and the information role of advertising. Interestingly, observational analysis has also extended to the macroeconomic role of advertising. Zheng, Kinnucan, and Kaiser (2010) provide evidence that advertising can predict national investment. Cowling, Poolsombat, and Tomlinson (2011) report that rising advertising rates are associated with increased labor supply in the United States. They hypothesize that advertising boosts the return to consumption of goods and services, leading to a substitution of consumption for leisure.

As described earlier, the role of advertising in health is an important and relatively recent strand in the literature. Blecher (2008) reports evidence that tobacco advertising increases demand in developing countries. Fast food advertising exhibits a significant impact on childhood obesity in the empirical analysis reported by Chou, Rashad, and Grossman (2008). Somewhat similarly, Saffer, Dave, and Grossman (2016) report that advertising of alcohol does increase consumption but the impact is larger for those who are already significant consumers.

Perhaps one of the most noteworthy changes in the advertising landscape in health care markets occurred in 1997 when the U.S. Food and Drug Administration made it easier for pharmaceutical companies to advertise directly to consumers (DTC) on multiple media platforms. Königbauer (2007) offers a model which suggests that such advertising can facilitate the entry of generic pharmaceuticals and improve consumer welfare. Iizuka and Jin (2005) report results which suggest that the market-expanding effect of such advertisements is more significant than the business-stealing effect (the latter is potentially inefficient). Advertising directly to physicians also has a significant impact on pharmaceutical use, according to Iizuka and Jin (2007). Dave and Saffer (2012) estimate that broadcast advertising significantly increases the demand for the drug which is advertised and also increases the drug's price. Nonbroadcast advertising has a smaller effect. Estimates suggest that broadcast DTC advertising can explain 19% of the growth in drug expenditures. Lakdawalla, Sood, and Gu (2013) provide evidence which suggests that expansion of insurance can induce advertising by pharmaceutical companies, thereby increasing utilization even beyond the newly insured. There is a positive spillover from greater insurance availability which is channeled through advertising markets. Anderson, Ciliberto, Liaukonyte, and Renault (2016) report additional evidence from the over-the-counter pharmaceuticals market which suggests that comparative advertising is less effective at raising perceived quality for the advertised product. Such advertising actually benefits other rivals in markets. In contrast, self-promotion is far more effective at raising the perception of product quality.

There is emerging evidence that, at least in pharmaceutical markets, advertising may have important supply-side effects. Both Kwong and Norton (2007) and Grossman (2008) suggest that advertising can also play an important role in product improvements. They report results which suggest that innovation in pharmaceuticals increases in the presence of advertising. Joshi and Hanssens (2010) offer an explanation for this result. Their analysis suggests that the market value of a firm increases in its own advertising. This equity market response may well supply the capital needed for a pharmaceutical company to invest in research and development. The relationship between advertising and innovation is worthy of additional exploration.

Content: Recent Theories and Evidence

A necessary condition for the existence of effective and valuable advertising is the production of compelling content by media firms. A host of subtle issues are involved in the decision to produce content of a particular type. Historically, content development has involved significant fixed costs of production and distribution. The Internet and widespread inexpensive information technology have immensely reduced these costs and, consequently, impacted the strategies which media firms adopt when they choose what to produce and how much they will differentiate from their competitors. And the present landscape features the entry of more competitors in content production, in large

part due to falling costs. Programming is now developed by firms such as Netflix, Amazon, and, in the near future, Apple. Fritz, Mickle, and Karp (2017) describe emerging plans for Apple to enter movie and television production. The incentive for these firms to produce content is not advertising, per se. Rather, it is a means to induce consumers to subscribe to a particular service (examples are Amazon Prime and Netflix streaming) and/or induce demand for hardware which has exclusive access to the content (in the case of Apple).

As discussed earlier, Steiner (1952) offers one of the earliest discussions of programming choices with a focus on radio broadcasting. In a theoretical extension to his analysis, Beebe (1977) suggests that a monopolist will broadcast “least common denominator” and homogeneous programming. Similarly, Spence and Owen (1977) show that niche programming with a small potentially audience will be undersupplied when consumers must pay for access to such programming.

More recently, the analysis of Berry and Waldfogel (2001) illuminated the implications of entry by media firms. They found that entry results in a welfare loss which is equivalent to 45% of revenue in radio broadcast industries since average costs can potentially increase as each firm produces less output. If the output is defined in radio broadcasting as anything which generates revenue then it is natural to consider the audience (which can be “sold” to advertisers) as a station’s output. If business stealing occurs then entry by radio stations means each station has a smaller audience. This, in turn, means the incumbent station’s average cost, which is the ratio of audience size to fixed costs, increases. It would be worth revisiting this result given that the Internet and information technology have radically altered the structure of costs. Nilssen and Sørsgard (2002) provide a model in which consumers have asymmetric costs for consuming media from a less-than-ideal source. They establish that a private incumbent will duplicate the attributes of a public entrant. Similarly, Gal-Or and Dukes (2003) report that media firms have an incentive to minimally differentiate when consumers dislike advertising. By offering similar content, media firms induce a low level of advertising, which, in turn, raises advertising prices.

One of the more prominent strands in the literature on content investigates the determinants of product variety in media markets. Perhaps one of the earliest contributions on this topic (subsequent to Steiner 1952, discussed earlier) was Hall and Batlivala (1971), who discuss the relationship between market structure and duplication of programming on television. Bourreau (2003) shows that in a duopoly model the incentive to differentiate is greater under a subscription content market (in contrast to advertising-supported media). His model also establishes that quality is higher under advertising-supported media. Lin (2011) offers an extensive and thorough extension of this analysis. Gabszewicz, Laussel, and Sonnac (2004) provide a model which predicts that, when consumers dislike advertising, media firms will optimally differentiate their programming.

Rogers and Woodbury (1996) provide evidence that radio markets with a larger number of stations offer a greater variety of formats. Relatedly, Berry and Waldfogel (2001) provide evidence that mergers in radio broadcasting increased the variety of station formats. This result is consistent with a strategy in which product position is used as a strategy for preemption. George and Waldfogel (2006) report results which suggest that the entry of the *New York Times* in local markets (as a consequence of lower distribution costs) induced lower circulation of local newspapers among college-educated subscribers. Local papers would then focus on local coverage and reduce coverage of national issues in order to differentiate from the *New York Times*. Chandra (2009) finds similar results. In a related effort George (2007) provides evidence that in more highly concentrated newspaper markets there is more variety in content. More recently, Gentzkow, Shapiro, and Sinkinson (2014) report results from an estimated and calibrated model which suggests that ideological diversity of newspapers is increasing in competition. Alexander and Cunningham (2004) report similar results for local television news. The variety of results regarding diversity and competition in newspaper markets suggests that additional investigation is warranted.

In the music industry, Ferreira and Waldfogel (2013) suggest that the wider availability of content across national borders as a consequence of the Internet has not displaced local music. Sweeting (2006, 2009) shows that media may theoretically prefer to coordinate on advertising timing, or differentiate on timing, depending upon consumer behavior. He finds that radio stations generally prefer to coordinate on timing. Such coordination averts consumer switching to avoid advertisements. Berry, Eizenberg, and Waldfogel (2016) estimate that there is significant over-entry in radio markets. In particular, welfare could be improved if high-quality stations were converted into low-quality. Sweeting (2013) suggests that if radio stations were forced to pay performance royalties the consequential radio station closure would be significant and relatively rapid. Mooney (2010) finds that new technology, such as satellite radio and the Internet, were not significant factors in the decline of radio listenership. Rather, consolidation has a larger impact on audiences. Waldfogel (2012) reports results which suggest that quality in the music industry has not decreased since the simultaneous introduction of Napster and reduced costs for the production of music.

Media and Politics

The role of media has a long legacy. Thomas Jefferson, one of the “founding fathers” of American democracy, observed, “were it left to me to decide whether we should have a government without newspapers, or newspapers without a government, I should not hesitate a moment to prefer the latter” (“Jefferson Quotes,” n.d.). Whenever a citizenry influences public decisions, either through elections or referendums, the information which is publicly available will significantly impact realized public policies. Carlyle (1841) described the media as the “Fourth Estate,” a political power which was equal among the other three estates, consisting of the clergy, nobility, and commoners. Particularly in democracies, the information provided by media can have a significant impact on the functioning of the political process. Voters are informed about a wide variety of policy, economic, and social issues from the content they glean from media industries. This information can shape their assessment of political actors and, in part, determine the electoral viability of incumbents and/or their challengers. Particularly in recent years this role of the media in the United States has undergone significant upheaval, a pattern which has been repeated in terms of the fundamental structure of media itself.

Besley and Burgess (2001) provide a theoretical model which suggests that a political system should be more responsive in the context of a vibrant media. They also provide evidence from the Indian newspaper market that state governments more promptly addressed food shortages in locales where newspapers had healthy circulation. Leeson (2008) shows that government influence over media results in a less informed and engaged electorate. Besley and Prat (2006) provide a possible theoretical explanation: media may be captured by the political system, which then subverts the availability of valuable information. DellaVigna and Kaplan (2007) show that the introduction of Fox News led to more political support for Republicans in subsequent elections. Oberholzer-Gee and Waldfogel (2009) provide evidence that increased availability of Spanish-language broadcasters increased Hispanic voter turnout in the United States. Gerber, Karlan, and Bergan (2009) provide evidence from a field experiment which suggests that political knowledge and voting tendencies were not impacted through randomized receipt of a free newspaper subscription. However, voting patterns were impacted by the availability of a newspaper.

A fascinating recent literature seeks to investigate whether media offers bias-free information to audiences. Mullainathan and Shleifer (2005) provide an extremely compelling model of bias. They assume that a portion of consumer payoffs from media involve confirmation of preexisting beliefs. Their model suggests that under common beliefs there is a slant in news coverage, even under competition. The slant becomes more extreme when consumers do not hold common beliefs. However,

consuming multiple sources of news will provide an unbiased view of the world. Baron (2006) shows that bias may induce lower prices for news as a consequence of consumer skepticism. His model also shows that there are very limited mechanisms available to control bias. For example, bias is not decreasing in the level of competition. Guo and Lai (2014) show that bias can increase as advertisers have more bargaining power relative to media firms. Gentzkow and Shapiro (2006) provide somewhat similar insights in a model of Bayesian consumers. Such consumers may infer that a news source is of high quality when biased information conforms to their prior beliefs. Similarly, Gentzkow and Shapiro (2010) provide a measure of newspaper slant. Analysis of this measure provides evidence that consumers do reward newspapers which provide information that is consistent with their beliefs. Groseclose and Milyo (2005) provide similar evidence of the existence of bias in media. A somewhat related potential cause of bias is a conflict of interest between editorial staff, who create content, and advertising staff. There may be an incentive to skew content in favor of advertisers in order to curry favor and enhance advertising revenues. Reuter and Zitzewitz (2006) provide evidence that this does occur in the financial press but the negative impact on consumers is limited. Dewenter and Heimeshoff (2014) provide similar evidence in the automobile trade press.

Interestingly, the model and results in Chiang and Knight (2011) suggest that consumers may be aware of this bias and use it strategically. Political endorsements can induce support of a candidate but “unexpected” endorsements (e.g., a left-leaning publication endorsing a right-leaning candidate) can have a greater impact on voter behavior. Durante and Knight (2012) provide additional evidence of relatively sophisticated media consumption behavior in Italy and Agirdas (2015) offers very recent insights on the topic of bias in newspapers.

Additional insights regarding the impact of biased information on social media platforms are sorely needed. Such platforms are designed to foster “stickiness”—that is, they provide information and interactions which entice consumers to spend a great deal of time on one platform and not switch to others. Showing consumers agreeable information will tend to achieve this goal. This gives rise to the possibility of “filter bubbles” or “echo chambers” in which consumers do not obtain a diverse portfolio of information (some of which they may not like). For a more thorough discussion of this topic see Bozdag (2013). The political implications of this development are relatively unexplored but increasingly important. How do filter bubbles limit the ability to achieve consensus and compromise in politics? Do such bubbles increase instability and influence policy in a particular direction? These are fascinating topics which are worthy of additional consideration.

Government Policy in Media Markets

There are many ways in which government policy shapes media. First, as pointed out by Doyle (2006), much of media production has the characteristics of a public good. It is non-rival because consumption of information and entertainment by one individual does not hamper the ability of another to consume it. In the presence of widespread and inexpensive duplication and distribution technology, as offered by modern information technology and the Internet, it is non-excludable. The producer of media cannot generally prevent others from consuming her output. Public goods are generally undersupplied by private producers. Copyright law, which grants exclusive reproduction and distribution rights to media producers, at least partially resolves this issue by creating excludability and inducing production of media. For a compelling discussion of this topic, see Besen and Raskind (1991).

Harbaugh and Khemka (2010) offer a model of copyright enforcement which illustrates many of the complex dynamics associated with exclusivity. Their analysis suggests that targeted enforcement of copyright law may be the best way to preserve media producers’ rights. The emergence of the

Internet and social media may have significant implications for the optimal form of copyright and its enforcement. An alternative solution to public goods challenges in media involves direct provision of media by a government agency or publicly subsidized nonprofit. Additional analysis of copyright and public media is warranted.

One public good which is significantly regulated and vital to media is radio spectrum. Typically a regulatory agency will disburse rights to radio spectrum so that broadcasters can deliver content and advertisements to consumers. For a recent discussion on the design of these auctions see Cramton (2013), who suggests that U.S. auction design could be improved by adopting auction procedures used in the UK.

Jenkins (2006) provides multiple definitions of media convergence. One such definition involves the availability of the same media across multiple distribution channels. The recent 5–10 years have witnessed a quickening of convergence. Spectrum management has yet to address this trend and additional analysis is welcome. For example, is it efficient to have a radio station available on traditional radio spectrum (e.g., AM or FM) and also available on mobile phone spectrum (via data services and Internet streaming)? Should spectrum be reallocated in the presence of convergence? There are related issues of access to information which are equally important. Fundamentally, there is a question of technological standardization and whether Internet distribution should become the standard for media delivery, thereby freeing resources for competing valuable uses. Daidj and Jung (2011) also note that businesses are pursuing previously unseen strategies as a consequence of convergence. This could have significant implications for regulators.

Antitrust policy in media industries has a long legacy. Many policies restrict ownership concentration in markets such as television, radio, and newspapers. These policies depend upon a clear definition of a market. However, Internet distribution has disrupted these market definitions. For example, all local newspapers are now theoretically available everywhere when their content is posted online, rendering a narrow geographic definition of a local newspaper market potentially irrelevant.

A critical question for policy makers is the substitutability of Internet media for media in alternative distribution channels. Ellonen, Tarkiainen, and Kuivalainen (2010) provide evidence that for nonsubscribers the online version of a magazine is a substitute for print versions. Liebowitz and Zentner (2012) present compelling evidence that, particularly for younger cohorts, Internet consumption is reducing television viewing. Yoo (2002) provides an early effort to address adjustments to regulatory policy as a consequence of the Internet. Similarly, Yoo (2014) discusses the manner in which conventional merger review may not well fit the new environment for media. Jeziorski (2014a, 2014b) illustrates that mergers have a complicated impact on consumers and advertisers in two-sided markets. The Internet has also born completely new regulatory questions. For example, Owen (2011) analyzes the question of network neutrality—that is, whether regulators should influence the manner in which traffic of different types is treated by Internet service providers. Bauer and Obar (2014) provide a comprehensive discussion of some of the goals pursued by network neutrality advocates and conclude that no single policy will achieve those goals. Dewenter (2016) provide an analysis which suggests that when downstream content is heterogeneous, network neutrality is not necessary to limit distortions from market power upstream. In contrast, Economides and Tåg (2012) establish that under certain conditions network neutrality regulation can be welfare-enhancing. In the future these issues will only grow in importance to regulators, media practitioners, and scholars.

Future Directions for Research

This section summarizes some valuable future paths for research in the field of media economics. These areas were also discussed earlier. First, since the nature of advertising has radically changed with the advent of the Internet it is plausible that its impact on competition is also different. Equally

important is an investigation into the economic impact of new forms of non-advertising content, such as social media. Quantification of the reduction in frictions as a consequence of new media, and implications for market efficiency, is also in order. Recent evidence that advertising may contribute to product innovations is also intriguing and worthy of additional exploration. What portion of productivity improvements can be associated with advertising? Turning to content, there are a wide range of heterogeneous results regarding the relationship between product variety and competition. Pursuing an explanation for diversity in the relationship between variety and competition would be valuable for a variety of reasons, including regulatory consideration.

In addition, the role of bias in social media content is an increasingly important topic, particularly as applied to politics. Moreover, alternatives to copyright as a means of inducing media production, such as public subsidies or public broadcasting, are worthy of more exploration as advertising revenues continue to decline. Lin, Fu, Yeh, and Huang (2013) as well as Poort and Baarsma (2016) provide compelling frameworks for analyzing the benefits of public media. Finally, the optimal form of regulation in the presence of media convergence via the Internet is in need of additional analysis.

There are also many opportunities for industry-specific future research. The impact of virtual reality on the movie and television industries is worthy of further exploration. Knapp and Hennig-Thurau (2015) examine the economic effect of the 3D feature on movie success. How will content evolve in response to the availability of greater interactivity with consumers? Similarly, how will advertising develop as a consequence of virtual reality? In the music industry, what are the new models for promotion and discovery of artists which best function on social media? How will artists receive compensation when music is increasingly commoditized by streaming services? How will radio broadcasting evolve when on-demand alternatives, such as podcasting, are equally, if not more, beneficial for consumers? Finally, will paywalls or micropayments allow magazine and newspaper publishers to flourish over the next decade or longer? Each of these issues is worthy of additional extensive analysis.

Conclusion

The body of media economics scholarship is sizeable, varied, and insightful. This literature has approached the topics of advertising, content, politics, and regulation from a variety of perspectives while employing an impressive diversity of techniques. Presently, media scholars face a compellingly dynamic environment in which rapid and emerging structural changes to costs and distribution methods are significantly altering the behavior of consumers and firms. This milieu represents a simultaneous challenge to established knowledge regarding media industries and an exciting opportunity to create new theories and test those theories with previously unused data and techniques.

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