

USER INFORMATION REGIMES: HOW SOCIAL MEDIA SHAPE PATTERNS OF CONSUMPTION

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INTRODUCTION.....	593
I. THE DIGITAL MEDIA MARKETPLACE	594
II. MODEL OF THE MEDIA MARKETPLACE	595
A. <i>Media Users</i>	596
B. <i>Media Providers</i>	598
C. <i>Information Regimes</i>	599
III. SOCIAL MEDIA AND THE EMERGENCE OF USER INFORMATION REGIMES	601
A. <i>Methods</i>	602
B. <i>Biases</i>	605
IV. HOW SOCIAL MEDIA SHAPE PATTERNS OF CONSUMPTION	608
A. <i>The Dynamics of Fragmentation</i>	608
B. <i>The Dimensions of Polarization</i>	610
CONCLUSION.....	612

INTRODUCTION

Patterns of consumption evolve with changes in the digital media marketplace. Recently, a rather broad new category of websites and networks, loosely referred to as social media, has emerged to challenge our notions of what media are, how they operate, and how they impact society. Despite receiving a good deal of attention in the popular press, social media are not well integrated into social scientific theory. Particularly notable is social scientists' failure to consider the user information regimes that social media produce. Search and recommendation systems have become indispensable tools for consumers navigating the marketplace. These systems have the power to focus public attention on certain things while condemning others to obscurity.

This Essay analyzes user information regimes and the role they play in shaping media consumption. First, it describes the essential characteristics of the digital media marketplace. Second, it presents a theoretical model of

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the marketplace that integrates work in sociology, economics, communication, and network analysis. The model highlights how information regimes help construct the media environment. Third, it describes user information regimes, the methods they commonly use to produce recommendations, and the biases that are often built into those methods. Finally, it identifies emerging patterns of media consumption, describing how user information contributes to audience fragmentation and polarization and how these systems might affect the future of the marketplace.

I. THE DIGITAL MEDIA MARKETPLACE

Though the digital media marketplace is constantly changing, three of its features are clear. First, the total supply of media materials and services is abundant and growing rapidly. Second, digital media are available across technological platforms that are increasingly well integrated, allowing consumers to access media products with growing ease. Third, the total supply of human attention available to consume those products is bounded. This combination of factors has led to a situation in which the supply of media massively exceeds the time individuals have available to consume it.

The observation that information is abundant relative to human attention is not new. Pioneering economist and cognitive psychologist Herbert Simon famously warned against a growing “poverty of attention.”¹ In the last decade or so, this insight has given rise to the conventional wisdom that we have become an “attention economy.”² In this world, attracting and managing attention is a prerequisite for achieving almost any economic, political, or cultural objective. Attention might thus be thought of as the currency of a new economy. As one industry pundit put it, attention is “the new crude oil.”³ To accomplish their goals, mass media outlets, marketers, bloggers, and other media providers must first succeed in attracting public attention.

A new generation of media has begun to change the ways in which public attention takes shape. Social media are a rather amorphous collection of websites and networks, as well as the programs and users that power them. There are different ways to organize these Internet-based media.⁴

¹ Herbert Simon, *Designing Organizations for an Information-Rich World*, in *COMPUTERS, COMMUNICATIONS AND THE PUBLIC INTEREST* 37, 40–41 (Martin Greenberger ed., 1971).

² See, e.g., THOMAS H. DAVENPORT & JOHN C. BECK, *THE ATTENTION ECONOMY: UNDERSTANDING THE NEW CURRENCY OF BUSINESS* 2 (2001); TOM HAYES, *JUMP POINT: HOW NETWORK CULTURE IS REVOLUTIONIZING BUSINESS* 73–75 (2008); RICHARD A. LANHAM, *THE ECONOMICS OF ATTENTION: STYLE AND SUBSTANCE IN THE AGE OF INFORMATION* 8–9 (2006); Josef Falkinger, *Attention Economies*, *J. ECON. THEORY* 266, 268–69 (2007); Michael H. Goldhaber, *The Attention Economy and the Net*, *2 FIRST MONDAY* 1, 3 (1997);

³ HAYES, *supra* note 2, at 73.

⁴ See, e.g., LARRY WEBER, *MARKETING TO THE SOCIAL WEB: HOW DIGITAL CUSTOMER COMMUNITIES BUILD YOUR BUSINESS* 153–205 (2007) (describing four “online conduit strategies” for building Internet communities).

For my purposes, three broad categories are most relevant. The first includes search engines, or what marketing expert Larry Weber called “reputation aggregators.”⁵ The second are content providers, including online versions of traditional media like the *New York Times*; sources of user-generated content like Wikipedia and YouTube, who increasingly offer media for free; and retailers who sell content, like Amazon, iTunes, and Netflix. The third category includes “social networks” such as Facebook, MySpace, Digg, Delicious, and a host of what Tom Hayes refers to as “affinity groups”⁶ that coalesce around subjects of common interest. These categories are not inviolable, just illustrative. Because social media are constantly adapting their functions, the boundaries between them are constantly shifting and often unclear. It is clear, though, that social media occupy a growing share of public attention. Worldwide, over eighty-five percent of Internet users a month engage in searches, while two-thirds use social networks or blogs.⁷ Among the latter group, time spent with “member communities” has increased sixty-three percent in just the last year.⁸

Besides using the Internet as a platform for delivering their services, all of these entities have at least two other things in common. Compared with more traditional media, they all offer some measure of interactivity, allowing users to click through, vote, sort, retrieve, recommend, post, buy, comment, or collaborate. They also inform users about what their fellow users are up to, either by revealing the sites to which other users link, distilling their recommendations and purchase behaviors, or simply reporting what others say. This user information is crucial in understanding how social media both create and are created by patterns of behavior. These reciprocal processes, which characterize both old and new media, are best understood within a theoretical framework that explicitly identifies the conditions of media use, the motivations of media providers, and the pivotal role of information regimes.

II. MODEL OF THE MEDIA MARKETPLACE

The theoretical model that I find the most useful for understanding the media marketplace is grounded in a sociological *theory of structuration*.⁹ Structuration describes a social world in which individual “agents” use social “structures” as resources to achieve their own ends.¹⁰ As they do this,

⁵ *Id.* at 153.

⁶ HAYES, *supra* note 2, at 52.

⁷ NIELSEN, GLOBAL FACES AND NETWORKED PLACES: A NIELSEN REPORT ON SOCIAL NETWORKING’S NEW GLOBAL FOOTPRINT 2 (2009).

⁸ *Id.* at 3.

⁹ ANTHONY GIDDENS, THE CONSTITUTION OF SOCIETY: OUTLINE OF THE THEORY OF STRUCTURATION 1–5 (1984).

¹⁰ *Id.* (describing agency and structure as the elements of the theory of structuration).

they both reproduce and alter those structures. In sociologist Anthony Giddens's view, agency and structure are mutually constituted as a "duality."¹¹

Language is an example of such a duality. It provides well structured rules that people routinely use to exercise their agency. In the process, they reinforce and change the rules of language.¹² Structure and agency have a reciprocal relationship. Media, by analogy, offer resources that users exploit to accomplish their own purposes. As users do so, they constantly reproduce and remake the digital media environment. Neither agents nor structures can function very well without the other. But for the system to work both need information about what's going on in the marketplace.

For our purposes, this model has three major components. The first is media users, the agents who consume media products and services. The second is media providers, who create the structures and resources that users employ. The third is information regimes, traditionally created by third parties to offer media providers the market information needed to observe and manage media consumption. More recently, information regimes have emerged to serve users as they navigate the digital media marketplace. In either instance, such regimes provide the mechanisms through which agents and structures constantly adapt to one another. This makes them a force in shaping patterns of consumption. In this Part, I discuss these three components in turn.

A. *Media Users*

Users take advantage of available media products and services as they see fit. In principle, they can do so at a time and place of their choosing. In practice, patterns of consumption are often constrained by budgets and embedded in the rhythms of everyday life.¹³ Most social scientific theories of media choice explain use as a function of psychological traits, such as preferences,¹⁴ needs,¹⁵ attitudes,¹⁶ or mood states.¹⁷ These are micro-level theo-

¹¹ *Id.* at 25–28.

¹² *Id.* at 21–22.

¹³ See JAMES G. WEBSTER & PATRICIA F. PHALEN, *THE MASS AUDIENCE: REDISCOVERING THE DOMINANT MODEL* 25–36 (1997) (describing "audience factors" that influence patterns of consumption); Aviva W. Rosenstein & August E. Grant, *Reconceptualizing the Role of Habit: A New Model of Television Audience Activity*, 41 J. BROADCASTING & ELECTRONIC MEDIA, 324, 324–44 (1997) (arguing that habit is "part of an underlying psychological process which helps create and maintain all other patterns of viewing behavior").

¹⁴ See, e.g., BRUCE M. OWEN & STEVEN S. WILDMAN, *VIDEO ECONOMICS* 101–50 (1992) (describing four modern models of program choice based on viewer preferences); MARKUS PRIOR, *POST-BROADCAST DEMOCRACY: HOW MEDIA CHOICE INCREASES INEQUALITY IN POLITICAL INVOLVEMENT AND POLARIZES ELECTIONS* 17 (2007) ("As cable offered a choice between different program genres, content preferences began to guide people's viewing choices . . .").

¹⁵ See, e.g., Alan M. Rubin, *The Uses-and-Gratifications Perspective of Media Effects*, in *MEDIA EFFECTS: ADVANCES IN THEORY AND RESEARCH* 525, 527 (Jennings Bryant & Dolf Zillmann eds., 2002) (describing "needs and motives to communicate" as one of the principal elements of the uses-and-

ries that identify psychological predispositions as the cause of purposeful, and therefore “rational,” media choices. Purposeful though users may be, however, a user’s ability to act rationally is “bounded” in two ways. First, the sheer number of media options available makes it impossible for any consumer to act with perfect awareness.¹⁸ The use of various guides or search engines can inform consumers about their options, but these impose their own “search costs” to the extent that finding the best option takes time. Second, this imperfect awareness is compounded by the fact that media products are what economists call “experience goods”¹⁹ characterized by “infinite variety.”²⁰ Even if users are familiar with a particular blog, TV series, or artist, they cannot know whether each new encounter will deliver the desired result until it has been experienced. A user’s knowledge of the full range of alternatives is so circumscribed that the utility of any choice is at best an educated guess.

The more abundant and accessible the media marketplace becomes, the more user awareness and rational choice must labor to keep up. In addition to relying on search engines, users now address this problem by turning to recommendations. We have known for some time that one function of “opinion leaders” has been to direct others in their social networks to preferred products or media.²¹ Today, many social media automate the process of recommendation and extend it to digital networks on a scale far larger than traditional face-to-face encounters.²² Those changes in both kind and

gratifications paradigm); Thomas E. Ruggiero, *Uses and Gratifications Theory in the 21st Century*, 3 MASS COMM. & SOC’Y 3, 8–9 (2000) (describing “dependency theory”).

¹⁶ See, e.g., John L. Cotton, *Cognitive Dissonance in Selective Exposure*, in SELECTIVE EXPOSURE TO COMMUNICATION 11, 11–12 (Dolf Zillmann & Jennings Bryant eds., 1985) (explaining the theory of cognitive dissonance, which proposes that people will avoid choices that conflict with their attitudes or beliefs); Natalie J. Stroud, *Media Use and Political Predispositions: Revisiting the Concept of Selective Exposure*, 30 POL. BEHAV. 341, 344–45 (2008) (arguing that people selectively expose themselves to political discourse that corresponds with their attitudes).

¹⁷ See, e.g., Peter Vorderer, Christoph Klimmt & Ute Ritterfeld, *Enjoyment: At the Heart of Media Entertainment*, 14 COMM. THEORY 388, 389 (2004) (identifying enjoyment as “the core of media entertainment”); Dolf Zillmann, *Mood Management in the Context of Selective Exposure Theory*, 23 COMM. YEARBOOK 103 (2000).

¹⁸ HERBERT A. SIMON, ADMINISTRATIVE BEHAVIOR: A STUDY OF DECISION-MAKING PROCESSES IN ADMINISTRATIVE ORGANIZATIONS 67 (1947) (arguing that, in the context of administrative decision-making, the subject is “confronted with a large number of alternative behaviors, some of which are present in consciousness and some of which are not”).

¹⁹ RICHARD E. CAVES, SWITCHING CHANNELS: ORGANIZATION AND CHANGE IN TV BROADCASTING 5 (2005).

²⁰ *Id.* at 7.

²¹ See ELIHU KATZ & PAUL F. LAZARSFELD, PERSONAL INFLUENCE: THE PART PLAYED BY PEOPLE IN THE FLOW OF MASS COMMUNICATIONS 32 (1955) (defining “opinion leaders” as “people who exerted a disproportionately great influence on the vote intentions of their fellows”).

²² See, e.g., Digg, <http://digg.com/> (last visited Mar. 1, 2010); Reddit, <http://reddit.com/> (last accessed Feb. 28, 2010); Delicious, <http://del.icio.us/> (last accessed Feb. 28, 2010). These sites aggregate Web pages that their users mark as interesting and then display the newest and most popular links to their visitors.

degree have potentially far-reaching implications for how consumers navigate the media environment. Together with search engines, recommendation systems create the new user information regimes that are discussed below.

B. Media Providers

Broadly speaking, media providers construct the environment within which users operate. Traditionally, governments and media industries have created the infrastructures, technologies, media products, and services that constitute the marketplace. These institutions are motivated by a desire to attract and manage public attention, which can be used to inform, enlighten, or make a profit.

Money can be made through “dual markets” in which media products are sold directly to audiences, or in which audiences are sold to advertisers.²³ The former constructs a market by offering media that attract users and is sometimes described as the “pull” method of audience building.²⁴ The latter, termed a “push” or “interruption” method, constructs an audience by embedding what might be unwanted messages within more desirable content.²⁵ Because people increasingly have the means to avoid such interruptions, some argue push methods will become untenable.²⁶

The number of media providers has now expanded dramatically with the growth of “user generated content.” These communications are typically delivered via social media.²⁷ While much of this activity serves to maintain interpersonal relationships,²⁸ much of it also shares the objectives of traditional media institutions. That is, the new content providers hope their offerings will inform, enlighten or make a profit. Beyond that, they might also seek benefits to reputation or simple notoriety.²⁹ With the exception of those engaged in genuinely interpersonal communication, then, all media providers have a stake in attracting and manipulating public attention. To do that, they must be able to see what media consumers are doing. That surveillance is provided by information regimes.

²³ PHILIP. M. NAPOLI, AUDIENCE ECONOMICS: MEDIA INSTITUTIONS AND THE AUDIENCE MARKETPLACE 2–3 (2003).

²⁴ See, e.g., Kim Bartel Sheehan & Deborah K. Morrison, *The Creativity Challenge: Media Confluence and Its Effects on the Evolving Advertising Industry*, 9 J. INTERACTIVE ADVERT. 40, 40–41 (2009).

²⁵ See, e.g., HAYES, *supra* note 2, at 80.

²⁶ *Id.*

²⁷ See, e.g., YouTube, <http://www.youtube.com/> (last visited Mar. 1, 2010).

²⁸ AMANDA LENHART, PEW INTERNET & AMERICAN LIFE PROJECT, ADULTS AND SOCIAL NETWORK WEBSITES 2 (2009).

²⁹ YOCHAI BENKLER, THE WEALTH OF NETWORKS: HOW SOCIAL PRODUCTION TRANSFORMS MARKETS AND FREEDOM 43 (2006). Benkler offers a summary of the motivations behind production strategies. *Id.* Elevating one’s status or visibility might have indirect financial benefits, though for some fame is probably its own reward.

C. Information Regimes

Both media providers and users depend upon information to make sense of and manage the digital media environment. Providers, whether institutions or lone content authors, need data on consumption to judge performance, monetize successes, and adapt audience-building strategies. Users, too, are increasingly dependent on search and recommendation systems to help them make rational choices. These needs have given rise to two broad categories of information regimes. The first category, market information regimes, has existed since the early twentieth century. The second category is what I call user information regimes, which are a more recent development, much like social media themselves. I briefly describe each category below and provide in the following section a more detailed account of the methods and biases of the user information regimes which are the focus of this Article.

Organizational sociologists N. Anand and Richard Peterson have noted that “market information is the prime source by which producers in competitive fields make sense of their actions and those of consumers, rivals, and suppliers that make up the field.”³⁰ They have also observed that in the United States such data are often provided by independent suppliers, creating what they termed “market information regimes.”³¹ These regimes are socially and politically constructed and direct the focus and actions of market participants in particular ways.³² Syndicated audience measurement services are a good example of such regimes. Anand and Peterson describe how a shift from *Billboard* charts to SoundScan measurement promoted fragmentation within the music industry by making new, previously undercounted niches more visible.³³ Business school researchers Kurt Andrews and Philip Napoli identified an analogous shift in book publishing with a change from bestseller lists to BookScan technology.³⁴ Other studies, while not explicitly referring to information regimes, have identified changes in television and radio attributable to the use of “peplemeter” technology to measure audiences.³⁵

³⁰ N. Anand & Richard A. Peterson, *When Market Information Constitutes Fields: Sensemaking of Markets in the Commercial Music Industry*, 11 *ORG. SCI.* 270, 271 (2000).

³¹ *Id.*

³² *Id.* at 271–72.

³³ See *id.* at 277–78 (attributing the rise of country music on the *Billboard* charts to prior underreporting of sales).

³⁴ See Kurt Andrews & Philip M. Napoli, *Changing Market Information Regimes: A Case Study of the Transition to the BookScan Audience Measurement System in the U.S. Book Publishing Industry*, 19 *J. MEDIA ECON.* 33, 47–48 (2006) (describing the effect of BookScan on the type of books that publishers choose to publish).

³⁵ See Beth E. Barnes & Lynne M. Thomson, *Power to the People (Meter): Audience Measurement Technology and Media Specialization*, in *AUDIENCEMAKING: HOW THE MEDIA CREATE THE AUDIENCE* 75, 84–89 (James S. Ettema & D. Charles Whitney eds., 1994) (arguing that the introduction of peoplemeters, which provided more finely-grained and timely demographic data than household meters, made

Though the market information described above circulates widely within the affected industries, it is costly and unavailable in any detail to the general public. Genuine “public measures” like law school and hospital rankings have proliferated in recent years. They appear to affect both public and institutional decisionmaking, and have become the subject of sociological research.³⁶ Social media have been especially prolific in manufacturing and distributing their own subset of public measures. Search engines, digital networks, and a variety of recommendation systems create user information regimes that are analogous in many ways to traditional market information.

All media-related information regimes aggregate data, often by recording the behaviors or declarations of media users. In doing so, they take actions that are ordinarily dispersed through time and space and make them visible. The data are then reduced and offered in the form of rankings, recommendations, or statistical summaries. These can be enormously powerful. Perhaps because they are built by aggregating what ordinary users say or do, they are generally seen as trustworthy.³⁷ In any event, they are often the only tangible evidence of the public attention media providers seek. Based on what they know about users, providers constantly adapt their offerings and audience-building strategies. TV programmers, for example, monitor “overnight” ratings and adjust their schedules to better manage “audience flow.”³⁸ Successful adaptations persist, while failures do not. Information regimes thus provide the mechanism through which users and providers both reproduce and alter the media environment.

Information regimes are, however, “man-made” and reflect the theoretical and methodological biases that go into their making. Biases are not typically malicious, but they are inherent in any research enterprise. The people who create these regimes make decisions about what to measure and how to report it. Their actions reflect both their clients’ needs and their

specialized cable networks more attractive to advertisers but fragmented the television audience); *see also* Philip M. Napoli, *Toward a Model of Audience Evolution: New Technologies and the Transformation of Media Audiences* 16–17 (McGannon Ctr. Working Paper Series, Paper No. 15, 2008), available at http://fordham.bepress.com/mcgannon_working_papers/15 (noting that peplemeters “provide[] detailed demographic information about the composition of the audiences for individual programs”).

³⁶ *See, e.g.*, Wendy N. Espeland & Michael Sauder, *Rankings and Reactivity: How Public Measures Recreate Social Worlds*, 113 *AM. J. SOC.* 1, 7 (2007) (analyzing the reactivity of public measures through a case study of the *U.S. News & World Report* rankings of law schools).

³⁷ *See, e.g.*, JAMES G. WEBSTER, PATRICIA F. PHALEN & LAWRENCE W. LICHTY, RATINGS ANALYSIS: THE THEORY AND PRACTICE OF AUDIENCE RESEARCH 232 (3d ed. 2006); Shyam Sundar & Clifford Nass, *Conceptualizing Sources in Online News*, 51 *J. COMM.* 51, 65 (2001); Eszter Hargittai et al., *Trust Online: Young Adults’ Evaluation of Web Content* 1–2 (Jan. 22, 2010) (unpublished manuscript, presented at the annual meeting of the Int’l Comm’n Ass’n in May 2009), available at http://www.allacademic.com/meta/p_mla_apa_research_citation/2/9/7/6/7/p297677_index.html.

³⁸ *See* James G. Webster, *Audience Flow Past and Present: Television Audience Inheritance Effects Reconsidered*, 50 *J. BROADCASTING & ELECTRONIC MEDIA* 323, 324 (2006).

own institutional interests. The biases that often characterize user information regimes are discussed in the following section.

The power of these “socially constructed” measures does not go unnoticed by media providers. Providers attempt to act upon information regimes in at least two ways. First, once a particular method for generating data is in place, providers will try to game the system. “Search engine optimization” and “Google bombing” are examples.³⁹ Second, if a change in method is in the offing, it can easily trigger bargaining among the affected parties, if not outright political struggle. For example, peplemeters have been the standard in national television audience measurement since the 1980s.⁴⁰ In 2002, Nielsen began introducing this well established method into local market measurement. Although peplemeters were widely acknowledged to be a superior to the diaries they replaced, the move was criticized by public interest groups for fear it would undercount minority viewers and ultimately undermine minority programming.⁴¹ Behind the scenes, News Corporation organized and bankrolled much of the dissent for its own tactical reasons.⁴² Nevertheless, the protests attracted any number of politicians and triggered congressional hearings.⁴³ As information regimes become ever more central to directing and authenticating public attention, these strategies for manipulating outcomes will be a persistent feature of the landscape.

III. SOCIAL MEDIA AND THE EMERGENCE OF USER INFORMATION REGIMES

Despite many similarities, market information regimes and user information regimes have differences. Most importantly, they serve different constituents with different goals. Providers generally want to manage and sell public attention. Users generally want to find information consistent with their needs or preferences. To serve the latter ends, user information regimes have developed their own methods for collecting, reducing and re-

³⁹ See Alexander Halavais, *The Hyperlink as Organizing Principle*, in *THE HYPERLINKED SOCIETY: QUESTIONING CONNECTIONS IN THE DIGITAL AGE* 39, 49 (Joseph Turow & Lokman Tsui eds., 2008). Search engine optimization refers to the practice of modifying a website to obtain a better rankunpaid search rankings. See, e.g., Joe Nocera, *Stuck in Google's Doghouse*, N.Y. TIMES, Sept. 13, 2008, at C1. Google Bombing is the practice of using hyperlinks from other websites to cause a page to show up in search results for keywords their authors did not intend. See, e.g., Joshua Rhett Miller, *Unlike Bush's 'Google Bomb,' Google Quickly Defuses Obama's*, FOXNEWS.COM, Jan. 30, 2009, <http://www.foxnews.com/story/0,2933,485632,00.html>.

⁴⁰ Karen S.F. Buzzard, *The Peplemeter Wars: A Case Study of Technological Innovation and Diffusion in the Ratings Industry*, 15 J. MEDIA ECON. 273, 282 (2002).

⁴¹ Philip M. Napoli, *Audience Measurement and Media Policy: Audience Economics, the Diversity Principle and the Local People Meter*, 10 COMM'N L. & POL'Y 149, 156 (2005).

⁴² Brooks Barnes, *For Nielsen, Fixing Old Ratings System Causes New Static*, WALL ST. J., Sept. 16, 2004, at A1.

⁴³ James Webster, *Developments in Audience Measurement and Research*, in *KELLOGG ON ADVERTISING AND MEDIA* 123, 137 (Bobby J. Calder ed., 2008); Barnes, *supra* note 42.

porting data. And, of course, these methods have their own biases. This Part describes the principal methods social media use to generate user information. It then identifies certain biases in those methods, many of which shape larger patterns of media consumption.

A. Methods

1. *Search Algorithms.*—Search engines offer recommendations in response to a query. One of the principle inputs for search engines is the linking architecture of the Internet.⁴⁴ Websites, created by both institutions and individuals, often point to other sites by providing a hyperlink. Hyperlinks are themselves a kind of recommendation, though the link may be less of an endorsement than a statement of noteworthiness.⁴⁵ If, like Google, a would-be search engine has sufficient computing power, links are fairly easy to monitor and analyze. While links reveal the existence of pathways rather than actual traffic, they are seen as indicative of consumption, affiliation and importance.⁴⁶

At this writing, Google is the preeminent search engine in the United States and much of the world. Using an algorithm modeled on academic citations, Google ranks websites with the requisite search terms according to the number and importance of their inbound links.⁴⁷ Though other search engines use different algorithms to locate content, they tend to replicate Google's results.⁴⁸ All privilege popularity and focus attention on a relative handful of sites. That pattern of concentration persists down through successively narrower media niches. Within these systems, once a site becomes popular, it tends to accumulate new visitors and links. Meanwhile, in a system driven by search engine rankings, even high quality new sites are often consigned to obscurity.⁴⁹ Search engines results are, like other public measures, "reactive."⁵⁰ They affect the very thing they measure. Google, for instance, not only measures popularity; it helps create it.

⁴⁴ Junghoo Cho & Sourashis Roy, Impact of Search Engines on Page Popularity 1 (May 17, 2004) (unpublished manuscript, presented at the Int'l World Wide Web Conference), available at <http://oak.cs.ucla.edu/~cho/papers/cho-bias.pdf>.

⁴⁵ See, e.g., Lada A. Adamic, *The Social Hyperlink*, in THE HYPERLINKED SOCIETY, *supra* note 39, at 227–28 (arguing that hyperlinks are used to express relationships and make recommendations).

⁴⁶ Seth Finkelstein, *Google, Links, and Popularity Versus Authority*, in THE HYPERLINKED SOCIETY, *supra* note 39, at 104, 107 (arguing that Google's ranking algorithm serves as a proxy for societal importance).

⁴⁷ JOHN BATTELLE, THE SEARCH: HOW GOOGLE AND ITS RIVALS REWROTE THE RULES OF BUSINESS AND TRANSFORMED OUR CULTURE 75 (2005); Halavais, *supra* note 39, at 39, 44).

⁴⁸ See MATTHEW HINDMAN, THE MYTH OF DIGITAL DEMOCRACY 80 (2009) (noting that Yahoo! and Google produce similar search results despite "us[ing] different ranking algorithms and different methods of crawling the web").

⁴⁹ Cho & Roy, *supra* note 44, at 20.

⁵⁰ See Espeland & Sauder, *supra* note 36, at 6–7 (defining "reactivity").

2. *Aggregating Social Networks.*—One of the more remarkable features of social media is their ability to quickly bring otherwise obscure stories or images to public attention. These stories and images are spread through social networks powered by digital technologies, and are variously described as cascades,⁵¹ contagions,⁵² or, sometimes, viral marketing.⁵³ Social network analysis suggests that the widespread dissemination of information is aided by the existence of “weak ties,”⁵⁴ which bridge otherwise disparate individuals and groups. It remains an open question whether simple information cascades can be triggered by a few influential people⁵⁵ or are essentially random events that bring things to public notice without much regard to their quality.⁵⁶

If social media supported these dissemination processes solely through person-to-person communication on digital networks, they might fall short of constituting information regimes. But people now pass along news items, photos, videos, rumors, or advice with tools that create powerful multiplier effects. Social news sites such as Digg, Slashdot, Reddit, and Mixx aggregate recommendations from their users and rank order the results for others to see. Bookmarking or file sharing sites like Delicious, YouTube, and Flickr will similarly point users to the most recommended or viewed items. Social networking sites such as MySpace, Facebook, LinkedIn, and Twitter can automatically highlight media among large networks of people, including many with weak or non-existent ties. Even on-line versions of traditional media encourage this activity. Top newspapers now point to their most popular stories, which seems to constitute a “public endorsement” of their merit.⁵⁷ Many articles also now feature a row of buttons that will flag the piece to your preferred social medium.

⁵¹ See, e.g., CASS R. SUNSTEIN, *REPUBLIC.COM 2.0*, at 83–91 (2007).

⁵² See, e.g., Damon Centola & Michael Macy, *Complex Contagions and the Weakness of Long Ties*, 113 *AM. J. SOC.* 702, 703 (2007).

⁵³ See, e.g., WEBER, *supra* note 4, at 39.

⁵⁴ Mark Granovetter, *The Strength of Weak Ties*, 78 *AM. J. SOC.* 1360, 1366 (1973); see also Duncan J. Watts & Steven. H. Strogatz, *Collective Dynamics of ‘Small-World’ Networks*, 393 *NATURE* 440, 440 (1998) (finding networks with some amount of disorder but that are not completely random “can be highly clustered”).

⁵⁵ See MALCOLM GLADWELL, *THE TIPPING POINT: HOW LITTLE THINGS CAN MAKE A BIG DIFFERENCE* 19 (2000) (“When we say that a handful of East Village kids started the hush puppies epidemic . . . what we are really saying is that in a given process or system, some people matter more than others.”).

⁵⁶ Matthew J. Salganik et al., *Experimental Study of Inequality and Unpredictability in an Artificial Cultural Market*, 311 *SCIENCE* 854, 855 (2006) (presenting empirical research showing that social influence contributes to both inequality and unpredictability in cultural markets); Duncan J. Watts & Peter Sheridan Dodds, *Influentials, Networks, and Public Opinion Formation*, 34 *J. CONSUMER RES.* 441, 455 (2007) (noting that “human cascades” are often caused by “small, possibly random” fluctuations that “cause even large groups to become locked into a particular collective choice”).

⁵⁷ Emily Thorson, *Changing Patterns of News Consumption and Participation: News Recommendation Engines*, 11 *INFO. COMM. & SOC’Y* 473, 475 (2008).

These information regimes intervene in the business of interpersonal communication. Users are, for the most part, willing participants in these data gathering and reporting exercises, which alert them to what others find noteworthy and give users the opportunity to influence many more people than would otherwise be the case.⁵⁸ Here, too, the machinery is not neutral. The content that becomes salient within a group, gaining notoriety and attention, is likely to resonate with the norms and predispositions that characterize the network.⁵⁹

3. *Collaborative Filtering.*—Social networks are not the only mechanism through which users are directed to media. Institutions are using the data generating potential of interactive media to develop powerful tools of surveillance and recommendation. The most sophisticated of these are collaborative filtering systems, which run proprietary algorithms that track an individual's expressions of interest, purchases, rentals, or downloads, and compares them with those of other users with similar profiles.⁶⁰ Based on that comparison, content providers can recommend other things a person "like you" might enjoy. Many Internet retailers, including Amazon, iTunes, and Netflix, are well known for pioneering the use of collaborative filtering.⁶¹ Other content providers, like Flickr and TiVo, use this technology to refine recommendations beyond simple popularity contests.⁶²

These institutionalized recommendations are not benign. Their purpose is, at the very least, to encourage user loyalty, and often to sell another book or rent another DVD. Though many users undoubtedly know this, they may nonetheless welcome such recommendations. If so, this genre of targeted "push" audience-building should thrive. The ability of recommending institutions to suggest just the right thing at just the right time is critically dependent on the scale and scope of their data-gathering opera-

⁵⁸ See, e.g., What Is Digg?, DIGG.COM, <http://about.digg.com/> (last visited Dec. 26, 2009) ("Everything on Digg—from news to videos to images—is submitted by our community (that would be you). Once something is submitted, other people see it and Digg what they like best. If your submission rocks and receives enough Diggings, it is promoted to the front page for the millions of our visitors to see.")

⁵⁹ See Stroud, *supra* note 16, at 341 ("[E]vidence supports the idea that people's political beliefs are related to their media exposure . . .").

⁶⁰ Gediminas Adomavicius & Alexander Tuzhilin, *Toward the Next Generation of Recommender Systems: A Survey of the State-of-the-Art and Possible Extensions*, 17 IEEE TRANSACTIONS ON KNOWLEDGE & DATA ENGINEERING 734, 734 (2005). Recommender systems can be (1) "content-based," tracking a user's selections over time; (2) "collaborative," comparing the user to others with similar tastes; or (3) "hybrid," combining elements of the first two. *Id.* at 735. This section references the latter two approaches and distinguishes them from unweighted popularity scores insofar as these collaborative filters produce recommendations by actively matching users with similar profiles.

⁶¹ See, e.g., CASS R. SUNSTEIN, INFOTOPIA: HOW MANY MINDS PRODUCE KNOWLEDGE 147 (2006).

⁶² See, e.g., Kamal Ali & Wijnand van Stam, TiVo: Making Show Recommendations Using a Distributed Collaborative Filtering Architecture (Aug. 22, 2004) (unpublished manuscript, presented at the Int'l Conf. on Knowledge Discovery and Data Mining).

tion. They need large volumes of server-collected information to refine behavioral and contextual recommendations. If these data can be wed to additional information describing users' lifestyles, preferences, and affiliations, targeting can be further honed.⁶³

B. Biases

1. *Behavior Bias.*—Almost all social media leave traces of their use. With access to the appropriate servers or the ability to monitor computer networks an enormous amount of information can be harvested. It is possible to track what people buy, the websites they visit, the information they request, the stories they read, the materials they download, and the sites to which they link. All of these activities qualify as behaviors. While some user information is built from carefully considered reviews, recommendations, and referrals, most of it is manufactured from the sea of behavioral data that digital media so readily produce.

A problem with behavioral data—even if those behaviors are accurately measured—is interpreting what they actually tell us. There is a longstanding assumption in economics that choices are a measure of “revealed preferences.”⁶⁴ That is, choices are a straightforward expression of a consumer's likes and dislikes. Of course, this is an oversimplification. There is an equally longstanding realization among social psychologists that behaviors are often inconsistent with attitudes. Any number of things tends to mediate preference as a determinant of behavior.⁶⁵ Further, because so many of a user's choices occur under conditions of bounded rationality, what a person thought they would like might not have delivered the desired gratifications. Measures built on behaviors thus tell us less than we would wish about what others like or found satisfying. Rather, they may reflect some of the other biases described below.

2. *Personalization Bias.*—With so many media to consume and so little time to consume it, an important function of user information is to guide people to what suits them. The more personalized a user information regime is, the more time it will save users, and the more successful the regime will become. Indeed, the rise and fall of social media and user information regimes is often a story of who can best put people in contact with

⁶³ See JOSEPH TUROW, *NICHE ENVY: MARKETING DISCRIMINATION IN THE DIGITAL AGE* 126–27 (2006) (discussing how new analytical techniques like data mining and targeted tracking are allowing retailers to create a customized sales environment).

⁶⁴ See generally Paul A. Samuelson, *A Note On the Pure Theory of Consumer's Behavior*, 5 *ECONOMICA* 61 (1938) (the seminal work on revealed preferences); Hal R. Varian, *Revealed Preference*, in *SAMUELSONIAN ECONOMICS AND THE TWENTY-FIRST CENTURY* 99 (Michael Szenberg et al. eds., 2006) (providing a contemporary review of the theory).

⁶⁵ James G. Webster & Jacob J. Wakshlag, *A Theory of Television Program Choice*, 10 *COMM. RES.* 430, 433 (1983) (providing a schematic representation of the various factors that influence television program choice).

what they want when they want it. Google shot to prominence on the basis of an improved search algorithm.⁶⁶ Facebook seems to have gained the upper hand on MySpace but, at this writing, is being threatened by Twitter, which exploits mobile devices.⁶⁷ If newer information regimes can better direct people to their “heart’s desire,” they can displace even well established social media.

Social networks and affinity groups also contribute to a personalization bias, though in a somewhat less calculated manner. Virtually all social networks seem to attract “birds of a feather,” a phenomenon that sociologists call “homophily.”⁶⁸ Group members tend to have similar backgrounds, interests, or predispositions.⁶⁹ Within those networks, media that address the relevant group interests, norms and prejudices will tend to circulate more readily. User information regimes enhance this process by eliciting, aggregating and ranking recommendations. Such features are undoubtedly among the reasons why social networks are popular. And they contribute to the personalization bias so widespread among social media.

3. *Popularity Bias.*—Almost all the methods of analyzing user preferences described above produce a rank-ordered list of recommendations. Search engines sort websites by the number and importance of inbound links. Social networks and content providers point users to the most read story, the most downloaded song, or the thing most “people like you” have purchased. In other words, the methods that user information regimes employ typically privilege popularity.

While critics of popular culture have historically viewed popularity as a dubious indicator of quality, user information regimes seem largely immune from this skepticism. Rather, users and social commentators alike often celebrate these systems because they embody the “wisdom of crowds”—the notion that many ordinary decisionmakers can produce collective judgments superior to those of experts.⁷⁰ This popular concept offers an appealing corrective to self-serving institutions and self-appointed authorities telling people what’s best. But even if one accepts that premise, user information regimes often fail to meet the prerequisites for producing good decisions. According to James Surowiecki’s widely cited book on the

⁶⁶ JOHN BATTELLE, *THE SEARCH: HOW GOOGLE AND ITS RIVALS REWROTE THE RULES OF BUSINESS AND TRANSFORMED OUR CULTURE* 4 (2005).

⁶⁷ Brad Stone, *Twitter Appears Set to Raise \$100 Million, Valuing It at \$1 Billion*, N.Y. TIMES, Sep. 25, 2009, at B1, available at <http://www.nytimes.com/2009/09/25/technology/internet/25twitter.html>; *Facebook Dethrones MySpace in the U.S.*, L.A. TIMES, June 16, 2009, <http://articles.latimes.com/2009/jun/16/business/fi-facebook16>.

⁶⁸ Miller McPherson, Lynn Smith-Lovin & James M. Cook, *Birds of a Feather: Homophily in Social Networks*, 21 ANN. REV. SOC. 415, 416 (2001).

⁶⁹ *Id.*

⁷⁰ See, e.g., CHRIS ANDERSON, *THE LONG TAIL: WHY THE FUTURE OF BUSINESS IS SELLING LESS OF MORE* 68 (2006); SUNSTEIN, *supra* note 61, at 147–96.

subject, the wisdom of crowds is only realized when large numbers of diverse individuals make decisions or predictions independently.⁷¹ Aggregating these autonomous judgments often produces a result demonstrably better than expert opinion.⁷² Unfortunately, most user information regimes violate these precepts.

First, recommendations are often made on the basis of relatively small, homogeneous groups of people. As noted above, members of social networks or affinity groups are, almost by definition, similar to one another. In most groups, the number of participants is limited. Hayes, for example, argued that affinity groups or “themed communities” are optimally sized at fewer than 500 individuals.⁷³ Beyond that, they seem to produce diminishing returns to constituent members.⁷⁴ These recommending bodies simply do not have the diversity that Surowiecki argued was essential for producing wise judgments.⁷⁵ Nor does collaborative filtering correct the problem. While the best systems sit astride vast stores of data, they are required to do so because relatively few people are ultimately useful in making a recommendation. That is, filtering algorithms search for and preferentially weight your “closest peers” or “nearest neighbors,” who often constitute only a tiny sliver of the database.⁷⁶

Second, none of the user information regimes described above promote the kind of independent decisionmaking required for optimal recommendations. Search engines offer users information about what others have done, effectively guiding subsequent decisionmaking. Aggregating and reporting what visitors to a website have chosen or what members of a social network recommend introduces powerful signals about social desirability for those who follow.⁷⁷ Unfortunately, cascades can be based on very little information and sometimes spin off in unpredictable and erroneous directions. Under such circumstances, popularity is often less a function of quality than of luck.⁷⁸ If autonomous decisions produce the best outcomes, contagions and

⁷¹ JAMES SUROWIECKI, *THE WISDOM OF CROWDS* 10 (2004).

⁷² *See id.* at 10–11 (explaining the “mathematical truism” that the judgments of a large enough group of diverse, independent people will statistically cancel out each others’ errors).

⁷³ HAYES, *supra* note 2, at 67.

⁷⁴ *Id.*

⁷⁵ SUROWIECKI, *supra* note 71, at 29–31 (explaining why “diversity” requires not only a range of possible solutions, but also a diverse group of decisionmakers).

⁷⁶ Adomavicius & Tuzhilin, *supra* note 60, at 735.

⁷⁷ *See, e.g.*, Stroud, *supra* note 16, at 341–66.

⁷⁸ *See* Salganik et al., *supra* note 56, at 855. An Internet-based experiment created multiple sites for downloading previously unknown songs. Users were provided with information on what others had downloaded. Providing more user information produced more “winner take all” results. However, the winners varied widely from site to site, suggesting early chance selections and social influence affected outcomes as much or more than song quality. *Id.*

cascades seem anathema to extracting wisdom from crowds. Surowiecki himself notes this problem.⁷⁹

IV. HOW SOCIAL MEDIA SHAPE PATTERNS OF CONSUMPTION

Social media—and the user information regimes they create—shape larger patterns of media consumption. In recent years, two such patterns have been especially salient: audience fragmentation and audience polarization.⁸⁰ How social media might exacerbate or mitigate these evolving patterns of consumption is the focus of this Part. In discussing each, I briefly summarize what we know, suggest why these are socially consequential behaviors, and identify unanswered empirical and normative questions.

A. *The Dynamics of Fragmentation*

One of the most widely observed trends in media consumption over the years has been the ever increasing fragmentation of audiences. As more media products and services compete for a limited supply of attention, consumption has been more widely distributed across outlets.⁸¹ While this has been the bane of traditional mainstream media and state broadcasters, the larger social implications of fragmentation are debatable. Some fear that loss of popular cultural forums that promote a common national identity, a unified social agenda and a shared sense of purpose.⁸² Others celebrate the prospect of niche media and the “ultimate fragmentation” that would follow.⁸³

User information regimes will be centrally implicated in the dynamics of fragmentation. Whether these regimes promote further fragmentation or, conversely, work to concentrate audiences is an open question. Chris Anderson’s popular book *The Long Tail* argues that the increasing inventory of media available in the digital marketplace will necessarily offer specialized content that better conforms to user preferences.⁸⁴ While much of that in-

⁷⁹ See SUROWIECKI, *supra* note 71, at 54 (“The fundamental problem with an information cascade is that after a certain point it becomes rational for people to stop paying attention to their own knowledge . . . and to start looking instead at the actions of others and imitate them.”).

⁸⁰ See, e.g., NAPOLI, *supra* note 23, at 135–38 (describing fragmentation within the specific context of “buying and selling audiences”); PRIOR, *supra* note 14, at 149–59 (describing these phenomena in the context of choice of news consumption); SUNSTEIN, *supra* note 51, at 60–69 (explaining group polarization); David Tewksbury, *The Seeds of Audience Fragmentation: Specialization in the Use of Online News Sites*, 49 J. BROADCASTING & ELECTRONIC MEDIA 332, 333 (2005); James G. Webster, *Beneath the Veneer of Fragmentation: Television Audience Polarization in a Multichannel World*, 55 J. OF COMM. 366, 366–70 (2005); James G. Webster, *Structuring a Marketplace of Attention*, in THE HYPERLINKED SOCIETY, *supra* note 39, at 23, 28–33.

⁸¹ See Elihu Katz, *And Deliver Us from Segmentation*, 546 ANNALS AM. ACAD. POL. & SOC. SCI. 22, 23 (1996).

⁸² See, e.g., *id.*

⁸³ See ANDERSON, *supra* note 70, at 181.

⁸⁴ See *id.*

ventory is, in his judgment, “crap,” he believes that recommendation systems like those described above will guide people to the best of otherwise obscure products.⁸⁵ In the aggregate, this will move cultural consumption down a “long tail” toward relatively unpopular media and away from what Anderson derisively calls “hits.”⁸⁶ User information regimes, powered by the wisdom of crowds, will lead people to those niches best suited to their tastes, creating a society composed of “millions of microcultures.”⁸⁷

One problem with this vision of the future is that it does not square with recent empirical work on audience concentration and the growth of the long tail. Both political scientists and communication researchers have reported that audiences are actually more concentrated in media characterized by abundant choice, such as websites, than in media offering relatively few choices, like radio.⁸⁸ Similarly, Professor Anita Elberse, a marketing expert, found that while the increasing supply of media has lengthened the long tail, the tail has gotten skinnier in the process.⁸⁹ The content that populates the long tail is more obscure than ever, while a few popular offerings continue to dominate consumption across virtually all forms of cultural production. The triumph of a few hits might suggest that they are simply of higher quality and should, in a world of limited attention, dominate the market. But the biases embedded in user information regimes might contribute to this result as well. As discussed above, search algorithms privilege popularity and accumulate advantage for market leaders. Other genres of recommendation have a similar bias. Many also signal the social desirability of a particular offering among people who share one’s affinities. These potentially powerful forces could concentrate cultural consumption, perhaps even counteracting the seemingly inexorable trend toward fragmentation.

Whether society will be better served by the flowering of a million microcultures or the persistence of a hit-driven culture is a normative judgment. I suspect the novelty of an abundant digital marketplace overflowing with social media, citizen bloggers, user-generated content, and countless niche offerings has caused us to take an unfairly dim view of “old-fashioned” mainstream media. Because they are in the business of catering to so many prospective consumers, traditional media outlets have often been derided as appealing to the lowest common denominator. Yet that economic fact of life encouraged owners to invest in content creation and effectively steered these media through the heart of the culture. Whether

⁸⁵ *Id.* at 22.

⁸⁶ *Id.* at 164 (“The more people you reach, the more money you make. In the short tail of hits, it’s as simple as that.”).

⁸⁷ *Id.* at 183.

⁸⁸ MATTHEW HINDMAN, *THE MYTH OF DIGITAL DEMOCRACY* 129–42 (2009) (arguing that political fragmentation among Internet users has led to a “missing middle” in national politics); Jungsu Yim, *Audience Concentration in the Media: Cross-Media Comparisons and the Introduction of the Uncertainty Measure*, 70 *COMM. MONOGRAPHS* 114, 125–26 (2003).

⁸⁹ Anita Elberse, *Should You Invest in the Long Tail?*, 86 *HARV. BUS. REV.* 88, 91 (2008).

tomorrow's hits can offer a common cultural forum or function as a "general interest intermediary" seems less certain.⁹⁰

B. *The Dimensions of Polarization*

Audience polarization describes the tendency of users to concentrate their patterns of consumption around a relatively homogeneous assortment of media products or outlets at the expense of exposure to more diverse offerings.⁹¹ This polarization conjures up the image of people effectively sequestering themselves in media niches, which have been variously labeled enclaves,⁹² gated communities,⁹³ sphericules,⁹⁴ echo chambers, or cyber-Balkans.⁹⁵ All raise the specter of a society not only devoid of a common cultural forum, but polarized into isolated or even hostile groups.⁹⁶

Unfortunately, studies of audience fragmentation shed very little light on this phenomenon. They typically offer snapshots of how the total audience is distributed across media at a point in time.⁹⁷ As such, these studies tell us very little about how individuals consume media across time. For example, a highly fragmented audience might mean that each person consumed a little bit from many diverse sources. But it might also mean that each person found a comfortable niche out on the long tail and spent most of his or her time there. Only the latter would suggest the kind of polarization described above. To empirically assess polarization, we must consider two questions. First, what dimensions of preference or structure might organize people into groups with distinct loyalties? Second, if these groups exist, how prevalent are they and how narrow are the media diets of constituent members?

We know less about the dimensions of polarization than we know about audience fragmentation. Nonetheless, studies of media, both old and new, have begun to shed light on the first question. For example, evidence indicates that media abundance has allowed those who prefer news to consume more and those who do not to avoid it like never before.⁹⁸ According

⁹⁰ See SUNSTEIN, *supra* note 51, at 12 (noting that whether "perfect filtering" would cause general-interest intermediaries to disappear is an empirical issue).

⁹¹ JAMES G. WEBSTER & P.F. PHALEN, *THE MASS AUDIENCE: REDISCOVERING THE DOMINANT MODEL* 110 (1997).

⁹² See, e.g., SUNSTEIN, *supra* note 51, at 77.

⁹³ See, e.g., JOSEPH TUROW, *BREAKING UP AMERICA: ADVERTISERS AND THE NEW MEDIA WORLD* 2 (1997).

⁹⁴ See, e.g., Todd Gitlin, *Public Sphere or Public Sphericules?*, in *MEDIA, RITUAL AND IDENTITY* 168, 170–73 (Tamar Liebes & James Curran eds., 1998).

⁹⁵ See, e.g., Marshall Van Alstyne & Erik Brynjolfsson, *Global Village or Cyberbalkans: Modeling and Measuring the Integration of Electronic Communities*, 51 *MGMT. SCI.* 851, 854 (2005).

⁹⁶ Cf. BILL BISHOP, *THE BIG SORT: WHY THE CLUSTERING OF LIKE MINDED AMERICANS IS TEARING US APART* 74–77 (2009) (discussing the polarizing effects of geographical clustering).

⁹⁷ See, e.g., ANDERSON, *supra* note 70.

⁹⁸ PRIOR, *supra* note 14, at 17.

to political scientist Markus Prior, this polarization in news consumption leads to differences in political knowledge and inclinations to vote.⁹⁹ The news consumption that does occur appears to be increasingly polarized along partisan dimensions.¹⁰⁰ In multiethnic societies, the growing availability of programming in “first languages” is a potent factor in segregating audiences.¹⁰¹ One could also imagine users organizing around various expressions of fandom or devotion to particular genres,¹⁰² though these might not constitute worrisome fault lines within society.

But do the devotees of a particular genre or ideology effectively seal themselves up in a niche where everything is of a particular sort? Answers to the second question are even harder to come by. Within television, it appears that the viewers of any given network, such as Fox News, spend most of time their watching other channels.¹⁰³ Moreover, the dogged persistence of hits in cultural consumption¹⁰⁴ seems to mandate that popular offerings will be included in the cultural diets of many people, even fans of niche media. It remains to be seen whether these varied patterns of consumption will persist in the future.

Once again, user information regimes are likely to play an important role in the outcome. Cass Sunstein has already sounded the alarm about the antidemocratic and polarizing effects of “filtering” technologies.¹⁰⁵ I’ve noted that extant user information regimes often recommend content that resonates with a people’s social networks, caters to their predispositions, or both. These information regimes certainly offer a person the tools needed to construct a media environment of agreeable ideas and preferences. Further, the power and precision of these filtering technologies will likely increase. To date, search engines have provided relatively generic results in response to queries. Increasingly, though, search results will be targeted to specific users. As affinity groups and collaborative filtering systems proliferate, the recommendations of like-minded people will be more readily available. All this suggests the emergence of a media environment, powered by user information regimes, in which people can increasingly get what they want.

⁹⁹ *Id.* at 94–98.

¹⁰⁰ See, e.g., W. Lance Bennett & Shanto Iyengar, *A New Era of Minimal Effects? The Changing Foundations of Political Communication*, 58 J. COMM. 707, 720–22 (2008); Shanto Iyengar & Kyu S. Hahn, *Red Media, Blue Media: Evidence of Ideological Selectivity in Media Use*, 59 J. COMM. 19, 28–33 (2009).

¹⁰¹ Thomas B. Ksiazek & James G. Webster, *Cultural Proximity and Audience Behavior: The Tensions Between Polarization and Multicultural Fluency*, 52 J. BROADCASTING & ELECTRONIC MEDIA 485, 487 (2008).

¹⁰² See, e.g., HENRY JENKINS, *CONVERGENCE CULTURE: WHERE OLD AND NEW MEDIA COLLIDE* 236–38 (2006).

¹⁰³ Webster, *Beneath the Veneer of Fragmentation*, *supra* note 80, at 374–75.

¹⁰⁴ See, e.g., Elberse, *supra* note 89, at 91–92.

¹⁰⁵ See SUNSTEIN, *supra* note 51, at 46–49.

CONCLUSION

Social media challenge our longstanding notions of what “media” really are. They have unleashed tidal waves of user generated content, but perhaps more importantly, they have produced the information regimes with which we navigate those waters. To date, cultural critics and social scientists alike have paid more attention to the profusion of media than the systems that shape their consumption. Yet it is those systems that will at once play kingmaker and executioner in today’s competitive media environment. Over time, those mechanisms will promote or discourage patterns of cultural consumption with potentially important social consequences.

This Essay has presented a model describing how the media environment changes through the ongoing interaction of media users and media providers. Central to that process are information regimes which are produced from actions of the users themselves. These systems, however, are not neutral reflections of the marketplace—they have biases that can actually move the market in certain directions. While recommendation systems can sometimes bring obscure things to public attention, further fragmenting the audience, quite often they have the opposite effect of reinforcing popularity and concentrating public attention. They also have the potential to promote audience polarization, perhaps leading to a more divisive society. But even now, one thing seems clear. The media environment and the information regimes that enable it are more likely than ever to give users what they seem to want.

Whether society will be well served by a media marketplace where supply finally meets demand is ultimately a normative question. Surely, many economists—and a good many users—would approve of such a result. Others who believe that social values should sometimes trump the marketplace will be unconvinced.¹⁰⁶ At a minimum, social scientists and policy makers should monitor emerging patterns of consumption, being particularly mindful of how social media might affect our fate.

¹⁰⁶ See, e.g., Robert M. Entman & Steven S. Wildman, *Reconciling Economic and Non-Economic Perspectives on Media Policy: Transcending the “Marketplace of Ideas,”* 42 J. COMM. 5 (1992).