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BLIND SPOT: THE ATTENTION ECONOMY AND THE LAW

TIM WU*

Human attention, valuable and limited in supply, is a resource. It has become commonplace, especially in the media and technology industries, to speak of an “attention economy” and of competition in “attention markets.”¹ There is even an attentional currency, the “basic attention token” (BAT), which purports to serve as a medium of exchange for user attention.² Firms like Facebook and Google, which have emerged as two of the most important firms in the global economy, depend nearly exclusively on attention markets as a business model.³

Yet despite the well-recognized commercial importance of attention markets, antitrust and consumer protection authorities have struggled when they encounter the attention economy.⁴ Antitrust agencies, tasked with assessing the effects of mergers and controlling anticompetitive behavior, seem to lack a way to understand the market dynamics when the firms offer “free products” that are actually competing for attention.⁵ Meanwhile, those tasked with consumer protection have no good paradigm for dealing with attentional intrusions stemming from non-consensual, intrusive advertising or debates over the use of telephones on airlines.

This essay aims to provide a legal and economic analysis to help face the challenges here described. In other work, I have described the rise and spread of the “attention industry,” the businesses that depend on the resale of attention, a global industry with an annual revenue of approximately \$500 billion.⁶ This essay builds on that work by focusing on the economic decisions implicit in “Attention Brokerage.” As described here, brokerage is the resale of human attention. It is to attract attention by offering something to the public (entertainment, news, free services, and so on), and

* Julius Silver Professor of Law, Columbia University. My thanks to participants at the Columbia faculty retreat, the Jevons group meeting, the Silicon Flatirons conference and to George Andreou, David Evans, Philip Bobbitt, Scott Hemphill, and Bert Huang, and to research assistants Josh Obear, Zoe Carpou and Janice Lee.

¹ See, e.g., Mathew Ingram, *The Attention Economy and the Implosion of Traditional Media*, FORTUNE (Aug. 12, 2015), fortune.com/2015/08/12/attention-economy/.

² See BASIC ATTENTION SOFTWARE, *Basic Attention Token (BAT) Blockchain Based Digital Advertising* (Mar. 13, 2018), basicattentiontoken.org/index/BasicAttentionTokenWhitePaper-4.pdf.

³ See *infra* Part II.A.

⁴ See *infra* Parts I.A, III.A, III.B.

⁵ See *infra* Part III.A.

⁶ See TIM WU, *THE ATTENTION MERCHANTS: THE EPIC SCRAMBLE TO GET INSIDE OUR HEADS* (2016).

then reselling that attention to advertisers for cash. Examples of pure Attention Brokers include social media companies like Instagram and Facebook, search engines like Google or Bing, ad-supported publishers like BuzzFeed or AM News, and some television channels like CBS or NBC. The Brokers' activities are critical to the operation of attention markets, for the business model creates much of the competition for attention that this essay describes.⁷

This approach offers new promise for the antitrust law and some of the challenges it confronts in the attention economy. Markets and market definition are central to contemporary antitrust law, and this essay offers a new approach to the definition of attention markets in cases where enforcers and courts may otherwise become confused by the presence of a “free” product or by two-sided market analysis.⁸ It suggests defining the relevant consumer markets based on “time spent” (or just “time”) as the currency, and then making use of the familiar economic concept of substitution to find an appropriate market. And so, for example, in a case centered on online mapping products, an enforcement agency may ask whether products like Google Maps, Waze, and Apple Maps are, in fact, substitutes for each other in attention markets. The law can then address appropriate market definition by asking whether other products, like streaming video, compete for the same attention as online maps. That makes possible the use of an “Attentional Small but Significant and Non-Transitory Increase in Price” test, or “A-SSNIPS” test as an aid to finding the appropriate market definition for consumer markets.

The implications of this essay are not merely theoretical. Armed with a better analysis, it would not be too late for an American antitrust agency to challenge some of the relevant acquisitions consummated over the 2010s, like Facebook-Instagram, or Google-Waze, under either Section 7 of the Clayton Act, or Section 2 of the Sherman Act.⁹ The passage of years might, in fact, provide clearer evidence of whether such mergers have, in fact, generated efficiencies, or instead yielded either higher advertising prices, or increased the ad-load experienced by consumers, or resulted in quality effects, like diminished privacy protections.

In any event, taking attention markets seriously will be essential for agencies confronting a new generation of challenges raised by the importance of the businesses

⁷ See *infra* Part II.

⁸ Cf. *Ohio v. Am. Express Co.*, 138 S. Ct. 2274 (2018).

⁹ See *United States v. E.I. du Pont de Nemours & Co.*, 353 U.S. 586 (1957); *Standard Oil Co. of N.J. v. United States*, 221 U.S. 1 (1911); *United States v. Microsoft Corp.*, 253 F.3d 34 (D.C. Cir. 2001).

that resell human attention. The goal of this essay is to encourage economists and agencies to develop workable models that help the law face these challenges.

I. BACKGROUND

A. THE BLIND SPOT

We may begin with two legal problems, one from antitrust, one from consumer protection, which demonstrate the challenges that attentional markets create for current laws.

1. *Mergers When Products Are “Free”*

Contemporary antitrust doctrine assumes cash markets where customers spend fiat currency to buy goods or services.¹⁰ Consumer harm, under this approach, is primarily measured in terms of higher prices, reduced output, or other money-related harms. This approach has a number of known limitations.¹¹ But a particularly problematic blind spot—one that has become prominent over the last decade—emerges when the companies in question seem to give away their products for “free” and are, in fact, competing in attention markets.¹²

As John Newman points out, this blindness to attention markets may have facilitated the consolidation of the broadcast radio industry over the 1990s.¹³ But let us

¹⁰ See *infra* Part III.A.1. Cf. *SCM Corp. v. Xerox Corp.*, 645 F.2d 1195, 1206 (2d Cir. 1981) (rejecting the argument that the threat of antitrust liability could “attach upon the acquisition of a patent at a time prior to the existence of the relevant market and, even more disconcerting, at a time prior to the commercialization of the patented art”).

¹¹ Neglect of innovation-related harms and effects on product quality are two prominent limitations. See OECD, *The Role and Measurement of Quality in Competition Analysis*, DAF/COMP (2013); Mark McMillan, *Quality Collusion: News, If It Ain't Broke, Why Fix It?*, 39 *FORDHAM URB. L.J.* 1895 (2012); see generally Tim Wu, *Taking Innovation Seriously: Antitrust Enforcement If Innovation Mattered Most*, 78 *ANTITRUST L.J.* 313 (2012).

¹² This essay is not the only work to notice the problem with merger review in this area. Some scholars have argued that there has been a failure to understand the importance of big data. See, e.g., MAURICE E. STUCKE & ALLEN P. GRUNES, *BIG DATA AND COMPETITION POLICY* 107–26 (2016). Others, like Newman, have focused on the problem of “zero price” markets. See John M. Newman, *Antitrust in Zero-Price Markets: Foundations*, 164 *U. PA. L. REV.* 149 (2015) [hereinafter Newman, *Foundations*]; John M. Newman, *Antitrust in Zero-Price Markets: Applications*, 94 *WASH. U. L. REV.* 49, (2016) [hereinafter Newman, *Applications*]; see also Michal S. Gal & Daniel L. Rubinfeld, *The Hidden Costs of Free Goods: Implications for Antitrust Enforcement*, 80 *ANTITRUST L.J.* 521 (2016).

¹³ Newman, *Foundations*, *supra* note 12, at 190–93.

focus our attention on the more recent series of mergers in the tech industries, and in particular the 2012 merger between Facebook and Instagram.¹⁴ Here is the challenge: given that both firms offer social networks for sharing content, but that neither company seems to charge end-consumers for their products, the traditional tools for assessing potential anticompetitive effects may not work. As we have suggested, if consumers don't "buy" Facebook or Instagram, then how can traditional economic tools tell us whether Facebook or Instagram are actually competing?

Existing antitrust practice does have some answers to this question, but, as we shall see by looking at that very merger, those answers are unsatisfying. While the American agencies keep their analysis secret, the British Office of Fair Trading did release its 2012 reasoning and it is, in retrospect, riddled with errors and absurdities.¹⁵ The Office approved the merger based on two main premises. The first was that Facebook did not have an important photo app, meaning that Facebook was not a serious competitor to Instagram in consumer markets.¹⁶ Next, the office observed that Instagram was not yet earning advertising revenue, meaning that Instagram was not an important competitor to Facebook for advertisers.¹⁷ Hence, the companies were not really competitors, allowing the Office to safely conclude that "no substantial competition concerns arise."¹⁸

It may be unfair to ridicule a decision made some years ago, but even at the time there was something clearly missing. Mergers are supposed to be suspect (both under U.S. law, and a substantially similar UK standard) when their effect is "substantially to lessen competition, or to tend to create a monopoly."¹⁹ Among other things, merger review is supposed to prevent a firm from eliminating "maverick" competitors—those

¹⁴ The Facebook-Instagram merger was approved in August 2012. See Julie Bort, *The FTC Approves Facebook's Purchase of Instagram*, BUS. INSIDER (Aug. 22, 2012).

¹⁵ OFFICE OF FAIR TRADING, ME/5525/12, *Anticipated Acquisition by Facebook Inc of Instagram Inc* (Aug. 14, 2012), webarchive.nationalarchives.gov.uk/20160815232112/https://assets.publishing.service.gov.uk/media/555de2e5ed915d7ae200003b/facebook.pdf.

¹⁶ *Id.* at 4–5.

¹⁷ *Id.* at 5–6.

¹⁸ *Id.* at 3.

¹⁹ 15 U.S.C. § 18. The Office of Fair Trading was supposed to act when a merger would cause a "substantial lessening of competition within a market or markets in the United Kingdom." A. NIGEL PARR, ROGER J. FINBOW & MATTHEW J. HUGHES, *UK MERGER CONTROL: LAW AND PRACTICE* 223 (2005).

that introduce new technologies or business models—that might threaten the incumbent, either as a current matter, or as a potential competitor.²⁰

That “maverick” description surely fit Instagram, which was once Facebook’s greatest potential rival in the market for social networking attention. Back in 2012, both firms already held large shares of the attention devoted to social networking, and both were competing for much the same attention—the same hours—that consumers might devote to such things.²¹ While they were not competing on price (yet), they *were* competing for the time people might spend sharing photos and comments online. Having already gained 30 million users, Instagram was poised to become the leading challenger to Facebook based on its strength on mobile platforms, where Facebook was weak.²²

At a minimum, the fact that the two firms were competing in attention markets might have yielded the conclusion that they were at least potential²³ or nascent competitors in advertising markets. Instead, in retrospect, the antitrust authorities unconditionally allowed Facebook to buy one of its most dangerous competitors, and thereby helped the firm insulate itself from effective competition. Business analysts, incidentally, thought this obvious at the time. As Om Malik wrote, Facebook “knew that for first time in its life it arguably had a competitor that could not only eat its lunch, but also destroy its future prospects.”²⁴ And as *TIME* wrote in a 2016 retrospective, “Buying Instagram conveyed to investors that the company was serious about dominating the

²⁰ See U.S. Dep’t of Justice & Fed. Trade Comm’n, Horizontal Merger Guidelines, § 2.1.5 (2010) [hereinafter Horizontal Merger Guidelines], www.justice.gov/atr/public/guidelines/hmg-2010.html; Matthew Sag & Spencer Weber Waller, *Promoting Innovation*, 100 IOWA L. REV. 2223, 2242 (2015) (describing a Schumpeterian approach to merger review).

²¹ One may also approach the question by asking what the respective market share of the advertising markets would be. Indeed, while the proceedings were secret, it was widely speculated that Instagram’s lack of advertising revenue at the time it was acquired was an important reason for allowing the merger to proceed. See Josh Constone, *Why the OFT and FTC Let Facebook Buy Instagram: FB Camera Is Tiny, IG Makes No Money, and Google*, TECHCRUNCH, Aug. 22, 2012, techcrunch.com/2012/08/22/ftc-facebook-instagram.

²² See Evelyn M. Rusli, *Facebook Buys Instagram for \$1 Billion*, N.Y. TIMES: DEALBOOK (Apr. 9, 2012), dealbook.nytimes.com/2012/04/09/facebook-buys-instagram-for-1-billion.

²³ See *United States v. El Paso Natural Gas Co.*, 376 U.S. 651, 660 (1964) (“The effect on competition in a particular market through acquisition of another company is determined by the nature or extent of that market and by the nearness of the absorbed company to it...”); *United States v. Falstaff Brewing Corp.*, 410 U.S. 526, 530 (1973) (blocking merger when “the acquisition eliminated competition that would have existed had Falstaff entered the market de novo”); see also Scott Hemphill & Tim Wu, *Nascent Competitors*, Penn. L. Rev. (forthcoming 2020).

²⁴ Om Malik, *Here Is Why Facebook Bought Instagram*, GIGAOM (Apr. 9, 2012), gigaom.com/2012/04/09/here-is-why-did-facebook-bought-instagram/; see also Nicholas Carlson, *Instagram Was Facebook’s Biggest Threat*, BUS. INSIDER (Apr. 9, 2012), www.businessinsider.com/instagram-was-facebooks-biggest-threat-2012-4.

mobile ecosystem while also neutralizing a nascent competitor.”²⁵ And since the acquisition, many antitrust scholars have criticized the decision as a costly “false negative.”²⁶

That the agencies lacked appropriate tools for assessing this and similar mergers is suggested by contrasting the Facebook-Instagram acquisition with similar tech acquisitions in cash markets. Consider, for example, Microsoft’s 1995 effort to acquire Intuit, the creator of Quicken, the personal finance program. As with Facebook-Instagram, Microsoft’s main line of business was not personal finance and its own product, Microsoft Money, trailed Quicken considerably. But because the two products were competing in cash markets, it was easy for the Department of Justice to see that by acquiring Quicken Microsoft would gain a large market share in the market for personal finance software, measured by cash sales. Hence Justice sued to block the merger; it was abandoned.²⁷

Further evidence of a blind spot comes from the fact that so many other similar attention economy mergers were unconditionally approved over the last decade, when, if cash markets were involved, at least some might have been conditioned or blocked. The first example was Google’s 2006 acquisition of YouTube—which, as in Quicken-Money, was a more successful version of one of Google’s own products, Google Video. The merger was approved without conditions.²⁸ And in 2013 Google acquired Waze, a mobile map program that might, potentially, have served as an “on ramp” for Google competitors in local search markets. At the time, just three major mobile mapping programs were in regular usage (Google Maps, Waze, Apple Maps); and if we assume that “mobile online mapping” is an appropriate attention market definition, it was a merger to duopoly. Nonetheless, the acquisition was unconditionally approved by the FTC.²⁹

²⁵ Victor Luckerson, *Here’s Proof That Instagram Was One of the Smartest Acquisitions Ever*, TIME (Apr. 19, 2016), time.com/4299297/instagram-facebook-revenue.

²⁶ Newman, *Applications*, *supra* note 12, at 109. See also Suzanne Van Arsdale & Cody Venske, *Predatory Innovation in Software Markets*, 29 HARV. J.L. & TECH. 243, 249 (2015).

²⁷ See Lawrence M. Fisher, *U.S. Sues to Block \$2 Billion Merger Microsoft Seeks*, N.Y. TIMES, Apr. 28, 1995, at 1; Lawrence M. Fisher, *Microsoft Scraps a Software Deal the U.S. Opposed*, N.Y. TIMES, May 21, 1995, at 1.

²⁸ *Google Gets Antitrust Approval for YouTube Deal*, N.Y. TIMES: DEALBOOK (Nov. 6, 2006), dealbook.nytimes.com/2006/11/06/google-gets-antitrust-approval-for-youtube-deal/

²⁹ See Melissa Grey, *FTC Will Not Challenge Google’s \$1 Billion Waze Acquisition*, ENGADGET (Oct. 1, 2013), www.engadget.com/2013/10/01/ftc-will-not-challenge-google-waze-acquisition/.

In 2014 Facebook acquired another challenger, the messaging app WhatsApp, eliminating another emerging competitor as a rival social network. In that case, even the payment of a large and obvious premium for the elimination of a competitive threat was not enough to trigger serious scrutiny.³⁰ Once again, as with Instagram, it was clear to industry analysts that the two firms were competing in attention markets: “WhatsApp’s growth is gobbling up user messaging and connection time that once could have belonged to Facebook. Now those users and their time *do* belong to Facebook. So buying WhatsApp allows Facebook to both own ‘the next Facebook’ and prevent ‘the next Facebook from eating Facebook’s lunch.’”³¹ When the anticompetitive effect of a merger seems so obvious to industry observers yet invisible to antitrust enforcers, it is worth asking if something is wrong. This essay suggests the missing element is the competition in attention markets—markets that the agencies do not measure or understand well.

Here’s how a better approach to a merger like Facebook-Instagram or Google-Waze would work. It would center on the recognition that these entities have consumer-facing products that are competing for attention, which is then resold to advertisers on the other side of the market. The trick, as with many antitrust matters, is market definition. For the Google-Waze merger, the “online mobile mapping” market might have been the appropriate market; the hypothesis can be tested using an Attentional-SSNIP test (discussed in more detail below). The A-SSNIP would posit a hypothetical monopolist who adds a 5-second advertisement before the mobile map, and leaves it there for a year. If consumers accepted the delay, instead of switching to streaming video or other attentional options, then the market is correctly defined and calculation of market shares would be in order. And while I am not in possession of the relevant data, it is possible that a merger that left behind just two major mobile mapping apps would be presumptively anticompetitive; but of course the parties would be free to rebut that presumption.

What we have here is really a problem not just for law but economics as well. As economist David Evans, who has done pioneering work in the area, recently put it, the economic literature “largely ignores the broader market for attention and the role of

³⁰ See Parmy Olson, *Facebook Closes \$19 Billion WhatsApp Deal*, FORBES (Oct. 6, 2014), www.forbes.com/sites/parmyolson/2014/10/06/facebook-closes-19-billion-whatsapp-deal/#7885fbf45c66.

³¹ See Henry Blodget, *Everyone Who Thinks Facebook Is Stupid to Buy WhatsApp for \$19 Billion Should Think Again*, BUS. INSIDER (Feb. 20, 2014), www.businessinsider.com/why-facebook-buying-whatsapp-2014-2.

content in acquiring that time from consumers.”³² That said, it is not too late. As suggested in the introduction, armed with better tools, it would be worth considering a challenge to some of these acquisitions under either Section 7 of the Clayton Act, Section 2 of the Sherman Act, or European equivalents.³³ For example, an agency might seek to undo the WhatsApp and Instagram mergers, if it finds that, in fact, competition in the relevant advertising and attention markets has, in fact, “substantially lessened.” It might also take into consideration whether the decrease in competition in attention markets has yielded quality effects—say, for example, the diminishment of privacy protections offered by WhatsApp in the years following the Facebook acquisition.³⁴

A full analysis of such a potential action is beyond the scope of this essay. But we can close by noting that the utility of analyzing attention markets is not isolated to merger analysis. For any case considering whether the conduct of an attention broker constitutes monopoly maintenance in violation of the Sherman Act would also face the challenge that the product is “free” and any foreclosed competition may be in attentional markets. The same goes for investigations of collusive behavior under Section 1 of the Sherman Act. At bottom, it must be asked whether a failure to take attention markets seriously is creating an unwarranted immunity for antitrust for firms operating in the attention economy.

2. *Attentional Intrusions*

In addition to shortcomings in the antitrust law, this essay also addresses the current weaknesses of regulatory and consumer protection laws in addressing the problem of attentional intrusions and “attention theft.” If the first Part dealt with the “voluntary” attentional markets, what we face here are problems in the involuntary, or coercive attention markets.

The proliferation of phones, other mobile devices, and screens has, over the last decade, raised a new series of questions about the protection of the public from unwanted and non-consensual bombardment with undesired information. Today, with

³² See David S. Evans, *The Economics of Attention Markets* 7–8 (Oct. 29, 2017) (unpublished manuscript), papers.ssrn.com/sol3/papers.cfm?abstract_id=3044858.

³³ See *United States v. E.I. du Pont de Nemours & Co.*, 353 U.S. 586 (1957); *Standard Oil Co. of N.J. v. United States*, 221 U.S. 1 (1911).

³⁴ Josh Constine, *WhatsApp CEO Jan Koum Quits Facebook Due to Privacy Intrusions*, TECHCRUNCH (Apr. 30, 2018), techcrunch.com/2018/04/30/jan-koum-quits-facebook/.

some frequency, the public finds itself a captive audience, and sometimes cannot voluntarily avoid “attentional intrusions”—whether deliberate, from advertising, or inadvertent, from other people.³⁵ Regulators, however, don’t have a paradigm for thinking about consumer harms that are not deceptive or involve physical or financial harm, but rather arise from the seizure of attention and consequential cognitive impairments.³⁶ Consider the problem of telephones in airplanes as an example.

In 2016, the Department of Transportation opened a proceeding regarding the use of telephones or other telephony devices on passenger airplanes.³⁷ There has long been a ban on cell phone usage on airplanes, justified by potential interference with traffic control communications, but further research into interference, and the introduction of Wi-Fi on flights, have renewed the question of what, if not interference, might actually justify a ban on airplane telephony.³⁸

For problems like this, which evoke considerable public interest and comment,³⁹ current regulatory paradigms do not give consumer protection agencies like the Department of Transportation a good handle on how to think about these challenges. As it stands, the regulatory debate over the cell phone ban on planes has focused on the inapposite concepts of “consumer deception” as against “letting the market decide.”⁴⁰ And so a deception framework was relied upon by the Department’s 2016 proposed rule that would have allowed telephone calls pursuant to “notice”—a requirement that airlines disclose that passengers will be exposed to phone conversations.⁴¹ The agency concluded that “consumers would be unfairly surprised if they learned for the first time, after purchasing the ticket, that their chosen flight permits voice calls. The proposed

³⁵ See discussion *infra* Part II.B.

³⁶ See discussion *infra* Part III.B.

³⁷ U.S. Dep’t of Transp., *Use of Mobile Wireless Devices for Voice Calls on Aircraft*, Notice of Proposed Rulemaking, 81 Fed. Reg. 90,258 (Dec. 14, 2016), www.federalregister.gov/documents/2016/12/14/2016-29830/use-of-mobile-wireless-devices-for-voice-calls-on-aircraft.

³⁸ Among other reasons, because Wi-Fi availability provides a new means of making phone calls. In 2013, the FCC also considered lifting the cell phone ban based on the idea that the interference rationale was obsolete. See Marguerite Reardon, *FCC Considers Lifting Cell Phone Ban on Planes*, CNET (Nov. 21, 2013), www.cnet.com/news/fcc-considers-lifting-cell-phone-ban-on-planes.

³⁹ See Bart Jansen, *Wi-Fi Calls on Planes OK? Answer Is Loud and Clear: No*, USA TODAY (Feb. 12, 2017), www.usatoday.com/story/news/2017/02/12/plane-flights-voice-calls/97822422/.

⁴⁰ For a summary of comments, see *supra* note 37.

⁴¹ *Id.*

requirements are designed to ensure that consumers are adequately informed, in advance, that voice calls will be permitted.”⁴²

To say that this did not address the public’s concerns would be an understatement. The public and other groups, like flight attendants,⁴³ were not complaining about deception—were not asking for more fine print—but making a more obvious point (sometimes in in vivid terms): that allowing phone calls would be, in effect, injurious. In a typical comment, “I cannot imagine the stress, disruption and rage that voice calls will create on an airplane. . . .”;⁴⁴ or another, “Can you imagine 100 or 100s of people confined in a small space all yelling into their cell phones for the entire duration of a flight?”⁴⁵ The agency itself estimated that 96 percent of the comments received since it proposed new rules have supported a full ban on telephony on airplanes.⁴⁶

What has been missing from the debate is some more concrete means of capturing the injury that passengers are complaining about. However vividly phrased, the consumer complaints currently do suggest harm in a manner that federal consumer protection agencies are well equipped to process. This essay provides a more concrete framework for considering the harm in attentional terms—as the non-consensual seizure of the scarce resource of attention, yielding cognitive impairment. Based on what is known about the science of attention, telephone calls and advertisements with motion and sound are extremely difficult if not impossible to ignore due to the involuntary attentional responses of the brain. There is even a literature studying the particular effects of overheard telephone conversations on attention, memory, and cognitive abilities.⁴⁷ By adopting such tools and scientific research, the regulatory agencies might better fulfill their mandate of protecting consumers.

⁴² See *id.*

⁴³ See *id.*

⁴⁴ See Jansen, *supra* note 39.

⁴⁵ Anon. Comment, *Proposed Rule to Limit the Use of Mobile Wireless Devices for Voice Calls on Aircraft* (Jan. 3, 2017), www.regulations.gov/document?D=DOT-OST-2014-0002-3735.

⁴⁶ See *supra* note 37.

⁴⁷ See, e.g., Lauren L. Emberson et al., *Overhead Cell Phone Conversations: When Less Speech Is More Distracting*, 21 PSYCHOL. SCI. 1383, 1383–88 (Mar. 30, 2010); Veronica V. Galván et al., *The Effects of Cell Phone Conversations on the Attention and Memory of Bystanders*, PLOS ONE (Mar. 13, 2013), journals.plos.org/plosone/article?id=10.1371/journal.pone.0058579; Andrew Monk et al., *Why Are Mobile Phones Annoying?*, 23 BEHAV. & INFO. TECH. 33, 33–41 (2004).

In both antitrust and consumer protection, the conclusion is the same: to do their jobs, agencies, legislatures, and courts need a better understanding of attentional markets. To better develop this potentially unfamiliar concept, we turn now to an examination of attention itself, the rise of the attentional industry, and the economic model of attention brokerage.

B. ATTENTION AND HOW IT IS SPENT

1. *What Is Attention?*

What is attention? The question has interested philosophers, scientists, and religious thinkers for quite some time. It is often the case that by the word “attention,” different people mean completely different things for, at its very broadest, the study of attention is the study of conscious experience and our very sense of existence.⁴⁸

This essay takes as its starting point the classic and very workable definition found in the writings of psychologist and philosopher William James. In 1890, James described attention as the brain’s “cursor,” that is, the facility by which some selected stream of information gains access to the brain. As he put it: “Everyone knows what attention is. It is the taking possession by the mind, in clear and vivid form, of one out of what seem several simultaneously possible objects or trains of thought.”⁴⁹

Over the last several decades, scientists have largely confirmed the physical basis for the James model.⁵⁰ We have brains with a limited capacity to process information, and we exist in an environment limited by time—168 hours per week. Our brains are presented with too much information (by the sense organs) for the brain to process (ten million bits per second, by one estimate).⁵¹ In the same way that our skin creates a

⁴⁸ One author notes that the following words are sometimes considered synonyms for attention: “arousal, effort, capacity, perceptual set, control, and consciousness.” EDWARD E. SMITH & STEPHEN M. KOSSLYN, *COGNITIVE PSYCHOLOGY: MIND AND BRAIN* 104 (2007).

⁴⁹ WILLIAM JAMES, *THE PRINCIPLES OF PSYCHOLOGY* 403–04 (1890). This definition helps explain James’s point that his life experience is “what I agree to attend to.” *Id.* at 402.

⁵⁰ Typical summaries of the attentional model can be found in Marvin M. Chun & Jeremy M. Wolfe, *Visual Attention*, in *THE BLACKWELL HANDBOOK OF SENSATION AND PERCEPTION* 272, 272–310 (E. Bruce Goldstein ed., 2004); MICHAEL I. POSNER, *COGNITIVE NEUROSCIENCE OF ATTENTION* (2d ed. 2011); SMITH & KOSSLYN, *supra* note 48, ch. 3 (“Attention”).

⁵¹ Kristin Koch et al., *Efficiency of Information Transmission by Retinal Ganglion Cells*, 14 *CURRENT BIOLOGY* 1523 (2004). See also *THE NEW COGNITIVE NEUROSCIENCES* 109–29 (Michael S. Gazzaniga ed., 2nd ed., 2000).

physical barrier between ourselves and the outside world, the attention system of the brain does the same thing with information. Without filtering out most information, we would be unable to function, and in some sense, unable to think. Consequently, we ignore, or filter, almost everything, focusing attention on only a tiny subset of the information made available.⁵² A well-known demonstration of this fact was the “invisible gorilla” experiment, wherein participants asked to count basketball passes generally failed to notice a man with a gorilla suit wandering across the screen and pausing to beat his chest.⁵³ While attending to one thing, we can become blind to others.

Yet even if filtering most things, we are always processing information, or paying attention to something. Attention cannot be stored or hold its value to be used later in time. This is one way that attention is very different than a traditional currency (though some quasi-currencies, like frequent flier miles, may also disappear if not spent). The fact that we ignore nearly everything provides an initial sense of why attention is a scarce resource. It also explains the importance of the “attentional decision.”⁵⁴ To allocate attention, our brain has means by which it decides to what streams of information, among the various choices, we will attend, or process. Scientists have discovered at least two different mechanisms for making those “attentional decisions.”⁵⁵ There is an involuntary mechanism, located in the lower parts of the brain, and a voluntary mechanism, whose operation relies on the upper parts of the brain.⁵⁶

⁵² For a review of competing theories of processing capacity, see Martin Sarter et al., *More Attention Must Be Paid: The Neurobiology of Attentional Effort*, 51 *BRAIN RES. REVS.* 145 (2006).

⁵³ See Daniel J. Simons & Christopher F. Chabris, *Gorillas in Our Midst: Sustained Inattention Blindness for Dynamic Events*, 28 *PERCEPTION* 1059, 1066 (1999); CHRISTOPHER CHABRIS & DANIEL SIMONS, *THE INVISIBLE GORILLA: AND OTHER WAYS OUR INTUITIONS DECEIVE US* (2010).

⁵⁴ In the economic and legal analysis of attention, it is useful to focus on the underlying capacity to process information. Accordingly, in this essay, I will refer to “attention” as the processing capacity of the human mind and the “attentional decision” as the decision of what stream of information to process. In this usage, a man watching television for 30 minutes, say, has made the attentional decision to “spend” attention on *Gilligan’s Island* or whatever other show he has selected.

⁵⁵ See Timothy J. Buschhman & Earl K. Miller, *Top-Down Versus Bottom-Up Control of Attention in the Prefrontal and Posterior Parietal Cortices*, 315 *SCI.* 1860 (2007).

⁵⁶ SMITH & KOSSLYN, *supra* note 48, ch. 3, gives a straightforward explanation of the “top-down” and “bottom-up” attentional models. The voluntary system, also described as “top-down” or “goal-driven,” is within our conscious control. We can decide, if imperfectly, what information to pay attention to. The words you are looking at right now cannot be understood unless you activate top-down attentional processing. You might direct it elsewhere—to the feeling of your feet in your shoes, or what a dinnertime companion is saying, or the peculiar shape of a cloud in the sky. We often say that we have decided to “pay attention” to something. But attention is also subject to involuntary control. The involuntary system, also called “bottom-up” or “stimulus-driven,” is activated by lower parts of the brain outside of conscious control. Research suggests our brains are involuntarily responsive to properties inherent in certain forms of information: loud noises, flashing lights, and rapid movement. “Saliency” is a word used in the scientific literature to describe these triggers. The bottom-up system is also responsive to some

The fact that attention can be seized in an involuntary fashion is important and relevant to the discussion of attentional larceny and related concepts later in this essay. Certain triggers—moving images, loud noises, bright colors—will attract attention without a voluntary decision being made.⁵⁷ The reaction, as scientists have shown, is automatic and like a reflex.⁵⁸ Hence, the attention that is spent this way cannot be described as consensual, at least in the sense of chosen.

How do we (the audience) decide what to spend attention on? The constant spending is directed, on a second-by-second basis, by the attentional decisions that have been carefully studied by neuroscientists.⁵⁹ As such, the decisions are not necessarily that different from how people spend money in traditional cash markets. In any event, attentional spending, like the spending of currency, is dictated by preferences (HBO versus MTV; Fox News versus MSNBC); various habits and rituals (spending “prime time” with the television, or “checking-in” to email or Twitter); and other considerations created largely by our technological environment (consider how you spend attention differently while carrying a smartphone; or on a day spent camping as opposed to in an office).

Summing up, the biology of human attention suggests three important facts. First, that we are always paying attention to *something*. Second, that our attention is scarce, limited by the processing power of the brain, and by time—the 168 hours per week that we are allotted. Finally, that we make “attentional decisions”—that we decide to pay attention to some things, while ignoring others. These three basic facts help us understand why attention is a scarce resource. They suggest that the spender of attention is like a man with a large supply of gold dust in a pocket with a small hole at the bottom that leaks at a constant rate, enriching whichever place he chooses to spend his time. This admittedly odd analogy helps capture how attention is spent.⁶⁰ And we can now see that our attentional decisions can be compared to other consumer decisions, such as spending money.

learned stimuli like food, familiar faces, sexual targets, and the like. These facts may help explain the chosen subject of many advertising posters.

⁵⁷ *See id.*

⁵⁸ *See id.*

⁵⁹ *See id.* at 3–5 (providing an analysis of how attentional decisions are made).

⁶⁰ Another metaphor is GEORGE BARR MCCUTCHEON, *BREWSTER’S MILLIONS* (1902), where a man was required to spend \$1 million within a year to inherit \$7 million.

2. Caveats

This model of the attentional spending has the advantage of being simple, but it also makes two slightly unrealistic assumptions. First, the model assumes that everyone's attention is worth roughly the same. Sometimes, advertisers do treat everyone as roughly the same, particularly for mass media events (like the Super Bowl, the Academy Awards, and so on). However, in practice the attention of different people is valued differently in the marketplace, both as an absolute matter and depending on the product. For many decades, those buying attention have tended to prefer access to minds that are younger and wealthier (the so-called 18–49 demographic).⁶¹ Sellers of particular products or political buyers of attention may value specific access to potential demographic niches: women or men, likely voters, parents expecting a new child, and so on. *Guns & Ammo* magazine, for instance, provides advertisers with access to ten million readers, who spend an average of \$233 per year on hunting apparel, and 82 percent of whom buy their own motor oil.⁶² Their attention is obviously more valuable to some than others.

Second, the model unrealistically values access to all mental states equally. In reality, certain mental states are considered more valuable—for example, the customer who is looking for something (i.e., “searching”), the customer who is in a receptive mood after having watched an enjoyable comedy show, the customer who is sitting with his family, and so on. Spirit Airlines, which sells advertising on seatbacks and other places, writes, “86% of in-flight customers are in a positive frame of mind; hence, they will be receptive to advertising messages.”⁶³ Once again, those Attention Brokers who can provide access to specific mental states tend to sell them at a premium.⁶⁴ As I shall suggest below, a more advanced model of the Attention Broker suggests an entity which not only resells attention, but resells very specific types of attention according to the demands of advertisers or others who wish to reach a targeted audience. Like any sophisticated broker of a product, he or she promises access to a broad range of minds and mental states.

⁶¹ See Frank Ahrens, *Networks Debate Age Groups' Value to Advertisers*, WASH. POST (May 21, 2004), www.washingtonpost.com/wp-dyn/articles/A44031-2004May20.html.

⁶² *Guns & Ammo 2016 Media Kit*, GUNS & AMMO, www.outdoorsg.com/wp-content/uploads/2014/10/2016_Guns-Ammo_MediaKit.pdf.

⁶³ *Passengers Receptive to In-Flight Advertising Messages*, GLOBAL ONBOARD PARTNERS (undated), www.globalonboardpartners.com/wp-content/uploads/2013/05/effectiveness_presentation.pdf.

⁶⁴ See discussion *infra* at Part II.A.

With our basic model of attentional spending, we now turn to advertising and attentional brokerage—the business model that consists of converting attention into cash.

3. *Advertising and the Value of Attention*

That human attention is valuable and is, perhaps, most easily captured by how much firms are willing to pay for it. Globally, over \$580 billion was spent on advertising in 2017, and over \$200 billion in the United States alone.⁶⁵ Economist David Evans estimated that Americans spent 437 billion hours in 2016 consuming ad-supported content.⁶⁶ This analysis of attention helps explain just what advertisers are paying for: access to the minds of consumers.

But why is that access valuable? Just what do advertisers do with the audience attention? The most straightforward answer is that firms value advertising for its ability to influence demand—by creating or influencing demand for their products, or potentially suppressing demand for competing products. Economist John Kenneth Galbraith was perhaps most straightforward about this point in his 1958 work *The Affluent Society*, where he stated that advertising’s “central function is to create desires—to bring into being wants that previously did not exist.”⁶⁷ In Galbraith’s account, such a function became understood as necessary in an affluent society that had already satisfied most of its basic needs. “As a society becomes increasingly affluent,” he noted, “wants are increasingly created by the process by which they are satisfied.”⁶⁸

By this theory, advertising can shape demand (people already want to eat; advertising creates a demand for burgers), or sometimes create product demand outright (few of us are born with an identifiable demand for a product like mouthwash, but we might later find that we want it).⁶⁹ Moving beyond this observation, over the last century

⁶⁵ Corey McNair, Global Ad Spending, The eMarketer Forecast for 2018, May 4, 2018, <https://www.emarketer.com/content/global-ad-spending>; Jasmine Enberg, Digital Ad Spending 2019 – US, <https://www.emarketer.com/content/us-digital-ad-spending-2019>. Some economists argue that as much as 25% of GDP is spent on “persuasion.” Donald McCloskey & Arjo Klammer, *One Quarter of GDP Is Persuasion*, 85 AM. ECON. REV. 191 (1995).

⁶⁶ Evans, *supra* note 32.

⁶⁷ JOHN KENNETH GALBRAITH, *THE AFFLUENT SOCIETY* 127 (40th anniv. ed. 1998).

⁶⁸ *Id.* at 129.

⁶⁹ There once was (and there may remain) resistance among some economists to the theory that advertising can influence demand, a matter discussed at some length by Galbraith. *Id.*

economists have proposed alternative theories of what advertising accomplishes.⁷⁰ Some of the early, competition-driven theories of advertising suggested that many advertisements were a means to persuade a customer to prefer one brand over another (say, Coke over Pepsi, or both over an unknown soft drink), irrespective of the merits of the underlying product.⁷¹ Economically speaking, the goal and effect was to influence the elasticity of demand, making it possible to maintain higher prices. A customer who constantly consumes advertisements about the distinctive appeal of Marlboro cigarettes, for example, might be unwilling to switch to another brand, even if cheaper. Economic studies confirm consumers will pay more for sodium hypochlorite solution when it is branded “Clorox bleach.”⁷²

The branding theory might explain why Pepsi could not gain market share against Coca-Cola throughout the 1950s, despite being far cheaper and offering a similar product.⁷³ Coke, in the 1950s, had the reputation as the “brand beyond competition.”⁷⁴ Its advertisements had succeeded not just in persuading consumers, but in ensnaring them, creating a brand loyalty that defied the usual assumptions of microeconomics.⁷⁵ This view of advertising led to the conclusion that advertising could serve anticompetitive purposes because it deterred switching between products.

Another, and perhaps the most straightforward theory of advertising, suggests that advertising just provides information that can be important to consumers making decisions (e.g., Geico’s “15 minutes could save you up to 15%” or “Coming Soon: Star Wars Part VIII”).⁷⁶ Under this theory, advertising exists to deal with missing consumer

⁷⁰ See, e.g., Kyle Bagwell, *The Economic Analysis of Advertising*, in HANDBOOK OF INDUSTRIAL ORGANIZATION 1703–844 (Mark Armstrong & Robert H. Porter eds., 2007).

⁷¹ *Id.*

⁷² WILLIAM S. BROWN, PRINCIPLES OF ECONOMICS 316 (1995).

⁷³ See BOB BATCHELOR, AMERICAN POP: POPULAR CULTURE DECADE BY DECADE 345 (2009) (noting that, in the early 1950s, Coca-Cola “claimed 69 percent of the U.S. market, whereas Pepsi-Cola could only attract about 15 percent,” with Pepsi’s marketing efforts throughout the decade narrowing Coke’s lead only “somewhat”); see also WILLIAM H. YOUNG & NANCY K. YOUNG, THE 1950S at 111 (2004) (“A strong television marketing campaign by Pepsi throughout the fifties narrowed Coca-Cola’s lead somewhat, but it remained mired in second place. Coke was truly the drink of choice for millions.”).

⁷⁴ BARTOW J. ELMORE, CITIZEN COKE: THE MAKING OF COCA-COLA CAPITALISM 151 (2015) (noting that, in 1950, “Coke was an unrivaled global brand, dominant in all corners of the world”).

⁷⁵ The Pepsi challenge—a blind taste test—sought to demonstrate to consumers that they actually preferred the taste of Pepsi, and were therefore irrationally drinking Coke as a matter of brand loyalty.

⁷⁶ See S.A. Ozga, *Imperfect Markets Through Lack of Knowledge*, 74 Q.J. ECON. 29 (1960); George J. Stigler, *The Economics of Information*, 69 J. POL. ECON. 213 (1961).

information, and thereby helps solve market imperfections. Finally, a theory pioneered in the 1990s, primarily by Gary Becker and various co-authors, saw advertising as a complement to products (something that makes them more valuable).⁷⁷ By this analysis, for example, billboards for Mercedes-Benz automobiles or Calvin Klein clothing serve to make those products more valuable to their owners, thereby justifying the firm's advertising expense.

As the examples show, it seems possible that different advertisements for different products might serve different functions. A new product might need to create demand; another to reinforce it; another to reward consumers who already own the product. Regardless of which theory has the greatest empirical support,⁷⁸ the relationship of each to the market for human attention should be clear. They tend to explain why businesses would find access to human attention valuable, for the access to the mind can be used to influence the demand curve for their products—whether by making the brand more desirable or by giving the customer information that he would not otherwise have.

With this understanding of why advertisers value human attention, we now turn to the model of attentional brokerage that is central to this essay, and develop the equivalents of pricing, market entry, market definition, and other concepts.

II. THE ATTENTION ECONOMY

A. THE RISE OF THE ATTENTION ECONOMY

In the 1830s, a group of newspapers in New York City, led by the *New York Sun*, pioneered a business model here described as “Attention Brokerage.”⁷⁹ The newspapers were sold for a penny, which was below the cost of printing. However, the papers nonetheless turned a profit by attracting larger audiences and reselling their attention to advertisers.

As I describe more fully in *The Attention Merchants*, the success of the *New York Sun* and other newspapers gradually led to the spread of the business model to a

⁷⁷ Gary S. Becker & Kevin M. Murphy, *A Simple Theory of Advertising as Good or Bad*, 108 Q.J. ECON. 941 (1993).

⁷⁸ See Bagwell, *supra* note 70.

⁷⁹ For a history of the Penny Press, see SUSAN THOMPSON, *THE PENNY PRESS: THE ORIGINS OF THE MODERN NEWS MEDIA 1833–1861* (2004). The Attention Brokerage model is introduced in WU, *supra* note 6.

remarkable number of media and other industries.⁸⁰ Briefly stated, after newspapers, the attention-brokerage business model spread to magazines, leapt to commercial broadcasting (radio and television), cable television, and has found its greatest impact in the web-based Internet industry, including industry leaders like Google and Facebook.⁸¹ The purpose of this essay is not to retell that history, but rather to examine more carefully the economics of attention brokerage and its implications for laws that typically presume cash markets as opposed to attentional markets.

In this essay, I refer to the business model of attention resale as “attention brokerage.” In its purest form, these businesses rely solely on the resale of attention to make money. Examples of pure attention brokers includes businesses such as broadcast television networks, free newspapers, and many of the companies on the World Wide Web, like Facebook or Google. In economic terms, the Attention Broker can be described as a specialized version of a platform intermediary in a two-sided market.⁸² In the literature pioneered by economists Jean-Charles Rochet and Jean Tirole, a platform intermediary is a firm that brings together buyers and sellers from two separate markets and facilitates their transactions.⁸³ Classic examples include credit card companies, shopping malls, or online firms like eBay. Each facilitates transactions by bringing together groups of buyers and sellers in one place or one format. To facilitate transactions, moreover, the platforms often charge fees to only one side of the market (typically the seller) so as to attract more buyers.⁸⁴

It is important to recognize the similarities and differences between attention brokerage and the intermediaries in two-sided markets. Like a typical platform, the Attention Broker brings together two groups: the public, and attention seekers (like commercial advertisers, but also others, like politicians). It also, as is typical for platform intermediaries, lowers its price to one side of the market (the public) by making its content appear free, and makes its profit on the other side (advertisers).

But the differences are important, and caution against simplistic assumption of the economic model. Most importantly, the Attention Broker sits at the juncture between two different types of markets—a money market on the one side, and an attention

⁸⁰ See WU, *supra* note 6, chs. 1–19.

⁸¹ See *id.* chs. 20–28.

⁸² See generally Jean-Charles Rochet & Jean Tirole, *Two-Sided Markets: An Overview*, 37 RAND J. ECON. 645 (2006).

⁸³ *Id.* at 648–49.

⁸⁴ See generally *id.*

market on the other. The Broker is *bartering* something desirable (the “honey”) for attention, and then reselling it for cash. In this manner, the Attention Broker differs significantly from a typical intermediary like a shopping mall or credit card company. Consider that a credit card company makes it easier for people to use money to buy goods and services. That is quite different than an Attention Broker, who is attracting attention and reselling it, for cash, to advertisers. The broker is therefore perhaps most accurately described as an unusual type of platform intermediary, situated between cash and attention markets, as pictured here.⁸⁵

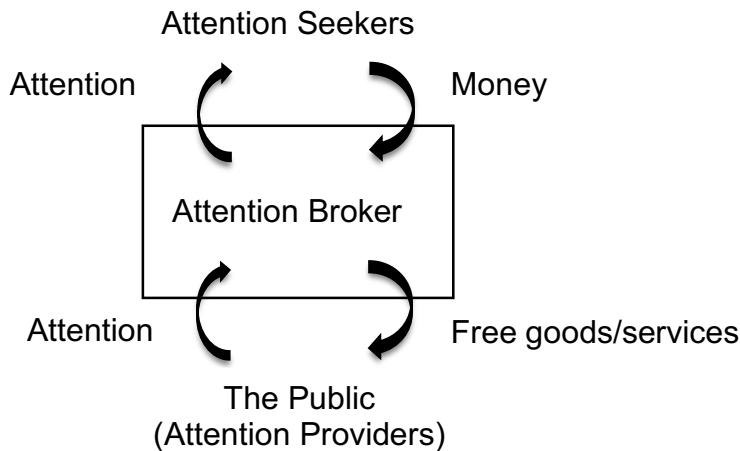


FIGURE 1: THE ATTENTION BROKER'S BUSINESS MODEL

Recalling an earlier illustration, we might think of the spender of attention as like the man with a large supply of gold dust leaking from his pocket at a constant rate. This is the consumer, the spender of attention, whose very presence is valuable. As he walks down the street, merchants (the Attention Brokers) might offer him free food, drinks, or other enticements to lure the man in, and then might charge the other patrons (the advertisers) extra for the opportunity to pick up some of the dust that falls as the man enjoys his drinks. That, in a nutshell, is the business model of the Attention Broker.

As suggested before, in a more advanced model, the Attention Broker resells not just attention in bulk, but specific, tailored tranches of attention designed to meet the needs of the buyer. For example, one might buy access to male consumers who are in their '30s and considering life insurance for the first time, or a person with a specific injury looking for a plaintiff's attorney, and so on. Brokers also may specialize in the

⁸⁵ This model is similar to that described in Evans, *supra* note 32, at 17–18.

resale of particular mental states (looking for a product, wanting to buy, etc.). The high-tech Attention Brokers like Google and Facebook have made much of their ability to very precisely target the right audiences and the right states of mind.⁸⁶

B. PRICING DECISIONS IN ATTENTION MARKETS

Pricing is, of course, at the core of cash markets, so it is important to understand the equivalent of pricing decisions in attentional markets. Once again, we focus on the key intermediary: the Attention Broker. In the course of competition, the Broker makes several price-setting decisions. More precisely, it makes three key decisions. At one level, the Broker sets the price of the “honey”—the service or good meant to attract the attention to be resold. It often sets that price at zero to induce the largest possible audiences; but not always: most newspapers and magazines also charge subscriptions or per-issue charges. Second, the Broker sets its advertising rates depending on its audience, the perceived desirability of that audience, and finally, some sense of the quality of their attention.

The third, less familiar pricing decision, but the most important for our purposes, is the setting of an “attentional price.” This usually involves deciding how much advertising to combine with desirable content. The Attention Broker knows that it is the “honey” that attracts its audiences (the football game, newsfeed, or the search engine, for example). Advertising, meanwhile, is usually a form of product degradation. But the Broker’s cash revenue depends on the amount of advertising it can sell. This leads it, logically, to want to set a mixture that will maximize its revenue without degrading the product too much and subsequently alienating consumers. If a web page or television show were nothing but advertising, it might be expected to attract very few viewers. On the other hand, displaying no ads will maximize viewership but result in no revenue. The optimal price lies somewhere in between.

Sometimes agencies and firms try to create advertising that audiences actually want to watch—indeed it is a Holy Grail.⁸⁷ But advertising, to be effective, cannot aim

⁸⁶ See Ryan Singel, *Analysis: Google’s Ad Targeting Turns Algorithms on You*, WIRE (Mar. 11, 2009), www.wired.com/2009/03/google-ad-annou/.

⁸⁷ For examples of efforts in this vein, see WU, *supra* note 6, at 179–80. Logically, advertising is just a form of information, and therefore might be useful or otherwise desirable. There are some well-known examples of advertising that have succeeded in minimizing or eliminating product degradation. The advertisements in fashion magazines like *Vogue* are considered by many readers to be part of the attraction. At another level, music videos on networks like MTV are sometimes described as a form of advertising, while movies like *Transformers* or *The Lego Movie* can be seen as enjoyable advertisements for toys. The longstanding goal of “targeted” advertising on the web

merely to be enjoyable: it needs to influence consumer demand for the product associated with it, which is a different goal than being entertaining. For one thing, an advertisement may need to be repeated more times than anyone would like to drive home its message and be remembered by consumers when they open their wallets.⁸⁸ Consequently, Attention Brokers are typically saddled with selling advertisements that will be taken by the audiences as degradation, and therefore face the pricing dilemma described above.

C. ATTENTION BROKER PRICING STRATEGIES AND MARKET ENTRY

An analysis of the pricing strategies employed by Attention Brokers helps demonstrate the value of the brokerage model. I have previously described how an Attention Broker, by deciding on the mixture of advertising and editorial, sets an attentional price.⁸⁹ Within the industry, this mixture is known as the “advertising load.”⁹⁰ But what strategies might Attention Brokers employ in this environment?

The most obvious approach to Attention Broker pricing is the same as a traditional pricing strategy: one tries to increase the price, or load, to the perceived point of consumer revolt. And so, for example, American television programmers believe that the maximum for their medium is reached by devoting between 14–16 minutes per hour to advertising, and burying some further marketing time into the shows themselves.⁹¹ The end goal is to be able to sell roughly one quarter to one third of television time to advertisers.⁹² Similarly, while we lack a clear metric for measuring the density of ads on

has been to display ads that users “want.” All these efforts notwithstanding, it is far easier to say that advertising should be desirable than to make it so.

⁸⁸ See Jeffrey Pilcher, *Say It Again: Messages Are More Effective When Repeated*, FIN. BRAND (Sept. 23, 2014), thefinancialbrand.com/42323/advertising-marketing-messages-effective-frequency/.

⁸⁹ See *supra* Part I.B.

⁹⁰ For an example of use of the term in context, see the comparison between the Hulu and broadcasting advertising loads in ANITA ELBERSE, *BLOCKBUSTERS: HIT-MAKING, RISK-TAKING, AND THE BIG BUSINESS OF ENTERTAINMENT* 174 (2013).

⁹¹ See Jon Swallen, *Oscar Takes Home Ad-Spending Gold*, KANTAR (Feb. 17, 2015), www.us.kantar.com/tech/tv/2015/a-decade-of-tv-advertising-for-the-academy-awards/ (“Regular prime time entertainment programming typically has 14–16 minutes of national ads per hour.”).

⁹² See Matthew P. McAllister, *Television Advertising as Textual and Economic Systems*, in *A COMPANION TO TELEVISION* 219 (Janet Wasko ed., 2009).

websites, many websites seem, by the mid-2010s at least, to have pushed up against the limits of consumer tolerance.⁹³

But it is also possible to employ more dynamic strategies. Over the 2000s Facebook introduced an interesting and successful variation. Facebook, at its introduction and for many years following, minimized its advertising.⁹⁴ According to one account, Facebook ran ads only as necessary to cover liquidity shortfalls, and otherwise ran no advertisements at all.⁹⁵ It did not, in other words, pursue revenue maximization, at least in the short term.

This strategy gave Facebook an immediate advantage over its main rivals, especially MySpace, which was following the traditional revenue maximization strategy and running as many ads as it could fit on the page.⁹⁶ Consequently, Facebook was, in the attentional terms used here, a lower price competitor to MySpace (even though, by traditional cash metrics, both were “free”). Facebook had other advantages as well—better code, and more “real” users—but the effect of its pricing strategy cannot be ignored.

After achieving market power and extinguishing or buying its main rivals by the 2010s,⁹⁷ Facebook then began to raise its price by changing the mixture of advertising and native content.⁹⁸ In other words, it then began to pursue a revenue-maximizing

⁹³ See Kate Murphy, *The Ad Blocking Wars*, N.Y. TIMES (Feb. 20, 2016), www.nytimes.com/2016/02/21/opinion/sunday/the-ad-blocking-wars.html?_r=0.

⁹⁴ See DAVID KIRKPATRICK, *THE FACEBOOK EFFECT* 177 (2011).

⁹⁵ See *id.*

⁹⁶ Multiple sources confirm the profusion of advertising on MySpace during this period. See, e.g., JULIA ANGWIN, *STEALING MYSPACE: THE BATTLE TO CONTROL THE MOST POPULAR WEBSITE IN AMERICA* 243 (2009) (noting profusion of low-revenue ads); KIRKPATRICK, *supra* note 94, at 177 (describing a \$900 million advertising deal MySpace made with Google in 2006); Felix Gillette, *The Rise and Inglorious Fall of MySpace*, BLOOMBERG BUSINESSWEEK (June 22, 2011), www.bloomberg.com/bw/magazine/content/11_27/b4235053917570.htm (explaining how the pressure to increase revenue led to a doubling in the amount of advertising in the mid-1990s).

⁹⁷ For a discussion of the acquisition of rivals Instagram and WhatsApp, see *supra* text accompanying notes 14–31.

⁹⁸ See, e.g., Brittany Darwell, *The Year in Facebook Advertising 2012*, ADWEEK (Dec. 31, 2012), www.adweek.com/socialtimes/the-year-in-facebook-advertising-2012/288561; J. O’Dell, *Facebook Has Totally Changed the Mobile Ad Industry, Caused 180% Spend Spike in 2012*, VENTUREBEAT (Dec. 17, 2012), venturebeat.com/2012/12/17/facebook-mobile-ads-boom/; Paul Tassi, *Facebook’s Advertising Is Starting to Spiral out of Control*, FORBES (July 1, 2013), www.forbes.com/sites/insertcoin/2013/07/01/facebooks-advertising-is-starting-to-spiral-out-of-control/#7cd83960204e.

approach, and arguably began setting something closer to a monopoly price.⁹⁹ As such, the overall dynamic pricing pattern resembles, in its rough contours, a predatory pricing strategy—the setting of a low price at an initial time period, followed later by monopoly pricing.¹⁰⁰

Understanding the mixtures of advertising and native content as a form of price setting also can help us understand another phenomenon—user “revolts” against sponsored media, such as the rise of ad-blocking in the mid-2010s.¹⁰¹ The theory is that, as with standard prices, every consumer has a reserve price—a level at which he or she considers the amount of advertising mixed with native content to be unacceptable. As with regular pricing, this can vary greatly by individual.

When her reserve price is exceeded, the consumer can be expected to abandon the product for that of a competitor, or revolt in other ways, such as installing ad-blocking software.¹⁰² Interestingly, consumers may not realize that this is, precisely, what they are doing; they may just notice that they have stopped watching broadcast television and started watching Netflix (which has no advertising).¹⁰³

A final wrinkle in our model of the Attention Broker concerns market entry. One implication of constant spending of attention is that an Attention Broker always faces an incumbent. That is to say, attention is always being spent on *something*, and so the commercial entrant necessarily must displace something that already has some hold on the attention desired. This might be thought of as historically occurring in one of two ways.

⁹⁹ See Garrett Sloane, *Facebook Ad Prices Are Rising Amid Organic Reach Squeeze: 10 Percent Higher Pricing in First Quarter*, ADWEEK (Apr. 8, 2014), www.adweek.com/news/technology/facebook-ad-prices-are-rising-amid-organic-reach-squeeze-156888; see also KIRKPATRICK, *supra* note 94, ch. 13 (discussing Facebook’s advertising strategy during this time).

¹⁰⁰ Predatory pricing is defined in ABA SECTION OF ANTITRUST LAW, MONOGRAPH NO. 22: PREDATORY PRICING 2–3 (1996).

¹⁰¹ See Murphy, *supra* note 93. Such revolts are extensively detailed in WU, *supra* note 6.

¹⁰² See *The 2015 Ad Blocking Report*, PAGEFAIR 3–4 (Aug. 10, 2015), blog.pagefair.com/2015/ad-blocking-report/ (noting that ad blocking grew by 41% globally between 2014 and 2015).

¹⁰³ See WU, *supra* note 6, ch. 27. There is also some evidence that Attention Brokers set different prices for different types of audiences, or in other words, employ price discrimination strategies. We see this whenever the same content is offered with varying levels of advertising. For example, the Forbes website, if it encounters an ad-blocker, offers to deliver an “advertising-lite” version of the site in exchange for the user turning off the ad-blocker. The presence of such negotiations tends to suggest an effort to price discriminate, once again revealing a pricing mechanism in operation.

Sometimes, a competitor in the attentional economy is trying to wrest specific blocks of time and attention from another Attention Broker. This form of competition is familiar—it is the well-known competition for “ratings,” “eyeballs,” or “monthly unique visitors.” Essentially, the competitors try to put up more alluring materials to capture audiences: a pure form of this competition is seen when two television programs compete for viewers during the same time slot, like when NBC programmed its new police show *Miami Vice* against CBS’s established prime time soap opera *Dallas* in the 1980s.¹⁰⁴ On the web, similar such scenarios feature a challenger trying to take away attention from an incumbent, such as search engine Bing’s effort to steal audiences from Google over the 2000s.

Another form of market entry is also important: the conquest of attentional “greenfields.” Attentional greenfields, by my definition, refer to the time occupied by non-commercial providers. They are, in other words, the time and attention spent on friends, families, hobbies, taking walks, and so on. The 20th century history of the attentional industries—the history of industrial expansion—is largely one of companies attracting attention that was previously spent on some non-commercial source. There are many examples. Over the 1930s, during the invention of “prime time,” broadcasters learned that they could attract attention previously devoted to activities within the home.¹⁰⁵ In the 1950s, during its competition with CBS, NBC took a greenfield strategy by introducing a “morning show” and “late night” television, two previously uncontested blocks of time.¹⁰⁶ In our times, computers, phones, and other devices have managed to contest nearly every waking period of time and attention, including that spent at work, waiting for things, and just about every other period imaginable.

With this understanding of the business strategies of the Attention Broker model and the resultant pervasiveness and omnipresence of the industry in everyday life, we now return to the legal problems posed by attentional markets.

III. ANTITRUST AND CONSUMER PROTECTION

¹⁰⁴ See Kenneth Clark, *Networks Put Big Guns Muzzle-to-Muzzle in an All-Out Ratings War*, CHI. TRIB. (May 27, 1986), articles.chicagotribune.com/1986-05-27/features/8602070888_1_miami-vice-time-slots-starman.

¹⁰⁵ See WU, *supra* note 6.

¹⁰⁶ See HOWARD J. BLUMENTHAL & OLIVER R. GOODENOUGH, *THIS BUSINESS OF TELEVISION: THE STANDARD GUIDE TO THE TELEVISION INDUSTRY* 130 (3d ed. 2006).

A. ANTITRUST: THE ATTENTION ECONOMY BLIND SPOT

Many of the leading firms in the technology and media industries—Facebook, Google, the major television networks, and others—are driven by the attention brokerage described in this essay. As large and acquisitive companies, they are also subject to antitrust scrutiny.¹⁰⁷ However, as already suggested, the tools currently employed to try and understand the key issue of competitive effects are greatly hindered by a blind spot for the attentional markets that these actors compete in.

In contemporary antitrust law, market definition and market power have become issues of central importance that are contested in nearly every case. As it stands, these key questions end up being addressed a nearly exclusive focus on “cash” markets and demonstrated effects on prices.¹⁰⁸ As numerous critics have written, antitrust has become “price-fixated” or “price-centric.”¹⁰⁹ And despite a decade of scholarship suggesting the importance of non-price effects, like innovation, or quality, little has changed. “If a law is capable of giving lip service to an idea, it has often done just that.”¹¹⁰

The consequence is really a blind spot larger than the one I describe here, and it is with these problems in mind that I suggest that analysis of attentional markets might be helpful for some of the more pressing antitrust problems of our time.

1. *Attention Markets in Merger Review: The Metric of Time*

One relatively simple way of measuring market power in attentional markets is to focus on the industry’s own metric: time spent, or in Silicon Valley jargon, “time on site.” Time serves as a proxy for attention and time on site is readily measurable, and already tracked by both industry and observers. For example, a 2017 comScore report suggests that Facebook held roughly 1,000 monthly minutes of the average American’s time, as compared with about 250 for Instagram and Snap, respectively, and less than 200 for

¹⁰⁷ See *supra* notes 14–29 and accompanying text (discussing the Facebook-Instagram and Google-Waze mergers).

¹⁰⁸ “To date, no court has invalidated a transaction solely because it reduced competition in an innovation market.” ABA SECTION OF ANTITRUST LAW, ANTITRUST LAW DEVELOPMENTS 602 (7th ed. 2012).

¹⁰⁹ See e.g., STUCKE & GRUNES, *supra* note 12, ch. 7; Newman, *Foundations*, *supra* note 12; Tim Wu, *Taking Innovation Seriously: Antitrust Enforcement If Innovation Mattered Most*, 78 ANTITRUST L.J. 313, 328 (2012) [hereinafter Wu, *Taking Innovation Seriously*].

¹¹⁰ Wu, *Taking Innovation Seriously*, *supra* note 109, at 313.

Twitter, and 50 for Google+. ¹¹¹ Relying on these data for hypothetical purposes, and presuming that “online social networking” is an appropriate market definition (more on this later) if consumers nationwide spent a total of some 2000 minutes per week on all social networking apps, and overall spent 55 percent of those hours on Facebook and 12.5 percent on Instagram, we would have some sense of the structural importance of a transaction like the Facebook-Instagram combination. In this hypothetical, it would leave the combined company with a 67.5 percent market share in the presumed social networking market. If those numbers were correct (likely they are not), by analogy, the merger would be presumptively anticompetitive. ¹¹² The merging parties, of course, would have the opportunity to rebut the presumption in the usual ways.

Using time as the metric is not difficult and it helps show some of the limitations of other approaches. In particular, a normal two-sided market analysis can prove confusing, and yield misleading conclusions, such as exclusive focus on the markets for advertising alone. The Europeans have sometimes adopted this approach, as with the 2012 Instagram-Facebook merger, where Britain’s cash-market analysis made Instagram a non-entity, even though it already controlled a sizable share of social network attention. ¹¹³ Hence Instagram and Facebook did not appear to be advertising competitors; yet this masked the fact that they *were* direct competitors for the attention spent on social networks. Also, as we’ve seen above it is typical for an Attention Broker to capture an audience at an earlier stage and then later convert that audience into advertising revenue. ¹¹⁴

If one wishes to adopt a two-sided market analysis, a focus on attention markets may also aid in understanding whether the merging parties are *potential* competitors. The fact that a firm is an actual competitor in attention markets—and therefore has the capacity to send messages to consumers—should create a presumption that the firm is also a potential competitor in advertising markets. That follows because, equipped with an understanding of attention brokerage, it should be clear that any entity with a large audience and large share of an attention market has the potential to compete for

¹¹¹ Adam Lella & Andrew Lipsman, *2016 U.S. Cross-Platform Future in Focus*, COMSCORE (2017). This data is not meant to be relied upon; the report does not give exact numbers, and it also is divided into two age groups of an unspecified size.

¹¹² This conclusion is premised on the structural presumptions in § 5.3 of the Horizontal Guidelines. Horizontal Merger Guidelines, *supra* note 20, § 5.3 (“Mergers resulting in highly concentrated markets that involve an increase in the HHI of between 100 points and 200 points potentially raise significant competitive concerns.”).

¹¹³ See *supra* note 15 and accompanying text.

¹¹⁴ See *supra* notes 94–100 and accompanying text (describing Facebook’s strategy in the 2000s).

advertising dollars. That premise is supported by the actual course that Instagram pursued. After gaining some 300 million users, it successfully introduced advertising in 2015 (and would have been competing with Facebook, if still independent) and began increasing the load thereafter.¹¹⁵

2. *Market Definition and Substitution Analysis*

It is well known by antitrust practitioners and scholars that defining the market in which power is alleged is a central and necessary step in contemporary antitrust practice. But how does one define attentional markets? This is a key question.

We assumed in the example above that “online social networks” is a market, but it might reasonably be asked if that is the correct definition of the market that Facebook and Instagram were competing in. In other words, are Instagram and Facebook competing with just social media platforms, like each other, Twitter, and Google+, or a much broader array of competitors, like all websites or maybe everything one spends time on?

In current antitrust practice and under the guidelines followed by the agencies for merger review, the “market” for a product is defined by the economic concept of “substitution.”¹¹⁶ Two products are in the same market if consumers view them as economic substitutes—meaning that a rise in price of one product would make consumers switch to the alternative.¹¹⁷ Hence, two different brands of peanuts might be in the same market but are not substitutes for beer.¹¹⁸ The question, then, is how we might assess what serves as a substitute for a product like Facebook, Instagram, Google search, or other attentional economy mainstays.

The proposed answer relies on what I term an “Attentional-SSNIP test”—but before reaching that it might be helpful to see how others have addressed the question.

¹¹⁵ Sapna Maheshwari, *More Ads to Appear on Instagram, Now on ‘Stories’ Feature*, N.Y. TIMES (Jan. 11, 2017), www.nytimes.com/2017/01/11/business/instagram-ads.html.

¹¹⁶ As stated in the 2010 Horizontal Merger Guidelines, “Market definition focuses solely on demand substitution factors, i.e., on customers’ ability and willingness to substitute away from one product to another in response to a price increase or a corresponding non-price change such as a reduction in product quality or service.” Horizontal Merger Guidelines, *supra* note 20, § 4.

¹¹⁷ See, e.g., ARLEEN J. HOAG & JOHN H. HOAG, INTRODUCTORY ECONOMICS 65–66 (2006) (basic introduction to substitutes and complements).

¹¹⁸ The beer and salty snacks are “complements.” See *id.*

One approach comes from economist David Evans in a pioneering 2013 article.¹¹⁹ Evans noted that, over a ten-year period, entire categories of sites became more or less popular (for example, social media became more popular, and web portals less). In that article he implied that much that is on the web competing for attention is presumptively in the same market.¹²⁰ As he wrote: “Twitter provides a very different service to viewers (micro-blogging) than Yahoo (content curation). . . . The point of this article, though, is that those differences are not necessarily relevant for assessing competition among online platforms. These attention rivals are all competing aggressively with each other to secure attention.”¹²¹

Evans provides some caveats and does admit that sometimes product differentiation might yield significant market power, but his focus on the scarcity of attention makes him emphasize that most attention seekers will be in competition most of the time.

This basic premise seems very overbroad as a theory of substitution. It would define the market so broadly that economists and antitrust authorities would immediately reject the definition as ridiculous in the context of a cash market. Cash is also a limited resource, very limited for some people, but that does not mean everything that costs money is a substitute. It is true that, as household budgets are limited, families may dine out less if rents increase. But that does not mean that housing and restaurants are in the same market, or that houses and restaurants are economic substitutes. The fact that they are drawing on the same, limited resource, cannot make everything in the attentional markets substitutes in an economic sense.

An alternative—seen in the British approach to the Instagram-Facebook merger—is not much better: to focus exclusively on the markets for the resale of attention (advertising markets) and ask whether the two firms compete there. This approach is too narrow because it fails when the business plans to gain attention before selling advertising,¹²² and also because it fails to account for competition in the consumer markets, which should presumptively be the most important. As we’ve seen, the approach also misses competition for attention.¹²³ It might be that advertisers see Google

¹¹⁹ See David S. Evans, *Attention to Rivalry Among Online Platforms*, 9 J. COMPETITION L. & ECON. 313 (2013).

¹²⁰ *Id.* at 341–43.

¹²¹ *Id.* at 343.

¹²² See Gal & Rubinfeld, *supra* note 12, at 35.

¹²³ See *supra* notes 15–19 and accompanying text.

and Facebook as offering substitutes—i.e., digital ads that reach a certain demographic. But that doesn't necessarily tell us whether *consumers* see the companies as substitutes or not. A demographic such as men in their '30s might like spending time on both Google and Facebook, but we don't know whether they view them as substitutes or not.

A better alternative, proposed here, is to directly test substitutability in the attentional markets by examining how consumers react to an increase in the “attentional price.”¹²⁴ In other words, the proposal is to use an analog to the Small but Significant and Non-Transitory Increase in Price (SSNIP) test first implemented by F.M. Scherer and the Justice Department for merger review.¹²⁵ The SSNIP test aims to test substitution by determining whether a hypothetical monopolist could profit from a price increase of 5 percent to 10 percent held for at least one year, where it is assumed all other product prices remained constant. If sufficient buyers would likely switch to alternative products, making the price increase unprofitable, then the hypothetical market is not a relevant market for antitrust purposes.

The attentional version of the SSNIP test, the A-SSNIP, tries to determine how consumers might react to a small but significant and non-transitory increase in undesired messages or advertising load for a given product. It bears a close resemblance to the Significant and Non-Transitory Increase in Quality (SSNIQ) test proposed by Michal Gal and Daniel Rubinfeld, but is focused on attention markets.¹²⁶

The A-SSNIP might be conducted simply by adding advertising to a product in a non-transitory fashion and determining whether that addition might make a significant number of consumers spend their time with a different product. For example, if one added a five-second advertising video that played before every usage of Google search, would some number of consumers switch to Bing? Presumably yes, meaning that Google search and Bing are substitutes and competitors. But what if the additional load was added to *all* search engines—would consumers spend less time on search and spend more time on Facebook or Twitter instead? If not—if consumers continue using search, even at the new, higher attentional price—then this would suggest that search is, in fact,

¹²⁴ The idea, in principle, has some analogy to efforts to address quality effects in merger analysis, which has usually, however, been qualitative. See Note by the United States, OECD, Directorate for Fin. & Enter. Affairs Competition Comm., Non-price Effects of Mergers (June 6–8, 2018).

¹²⁵ The test is described in more detail in F.M. SCHERER, *INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE* 517 (1990); see also Horizontal Merger Guidelines, *supra* note 20. This builds directly on the approach suggested by Randal Picker. See Randal C. Picker, *Online Advertising, Identity and Privacy* (Univ. of Chi. John M. Olin Law & Econ., Working Paper No. 475, 2009).

¹²⁶ Gal & Rubinfeld, *supra* note 12.

the right market definition and that a hypothetical search engine monopolist is in a position to raise attentional prices.

The approach might help agencies with the question of whether desktop and online products are attention substitutes or not. Take the market for online maps. Would the introduction of a five-second advertisement by a hypothetical mobile online mapping monopolist lead consumers to switch to desktop versions of the product? We don't know, but the answer might help an agency analyzing a transaction like Google's acquisition of Waze.

The A-SSNIP is not the only way that attention market definition might be approached. Another strategy might be just to survey users of Instagram and find out whether their use of the product took away from their time on Facebook. One might also examine documents internal to the companies that suggest whom they view as competitors for attention, or examine whether or why a firm has been able to raise its attentional prices without apparent constraint from competitors.¹²⁷ The point is merely that a better approach to understanding what counts as a substitute in the attention economy is needed if the agencies are to do their jobs effectively.

* * *

At bottom, in a world where so many important firms depend on attention markets, it is clear that in at least some cases, regulatory analysis of attentional markets might be useful or better than traditional cash market analysis. The project is of some urgency, given the size of the companies in this area and the number of mergers that are likely to occur, or have already occurred.¹²⁸ As it stands, the major antitrust agencies do not have a handle on competition in the attention economy, and without one, they will be unable to effectively protect the public against undue consolidation, without hindering or preventing those mergers which benefit the public.

It might be asked what, if any, might be the consequences of the identified blind spot for the public? They are simply the harms from failing to protect the competitive

¹²⁷ Google, for example, has increased the number of ads and placed ads in new places in its searches. See Ananya Bhattacharya, *Google Has Been Quietly Placing More Ads in Search Results*, QUARTZ (Feb. 2, 2017), qz.com/900349/google-goog-has-been-quietly-placing-more-ads-in-search-results/.

¹²⁸ See Lapo Filistrucchi et al., *Market Definition in Two-Sided Markets: Theory and Practice*, 10 J. COMPETITION L. & ECON. 293 (2014).

process in regular markets.¹²⁹ First, with less or limited competition, it is easier for dominant firms to raise prices, both in terms of cash and attention. For consumers, this means that firms can impose heavier ad-loads for the same product; one need only compare the major websites of 2010 with those of today to see that the advertising load has increased dramatically.¹³⁰ Second, market power makes it easier for the firms to charge advertisers higher prices, which are ultimately passed on to the public. Finally, the nullification of challenging competitors through mergers can threaten the process of innovation, which is, as most economists believe, of far greater potential magnitude than any price harms.¹³¹ In short, at its worst, an inability to grapple with power in attention markets poses the potential for allowing the persistence of the kind of monopoly dominance and stagnation that the antitrust laws were enacted to fight.

B. THE PROTECTION OF CAPTIVE AUDIENCES

I tremble for the sanity of a society that talks, on the level of abstract principle, of the precious integrity of the individual mind, and all the while, on the level of concrete fact, forces the individual mind to spend a good part of every day under bombardment with whatever some crowd of promoters want to throw at it.¹³²

– Charles Black, 1953

The ubiquity of screens and devices might be the first thing that a visitor from another decade would notice about our times. Whether carried in our hands, or found in a taxi, elevator, schoolhouse, waiting room, and many other places, these screens can be hard to escape. And while most of our usage of screens or phones is consensual—indeed a mainstay of socializing and work—some is not, yielding new regulatory challenges.

This Part focuses on problems posed by the seizure of attention that is *non-consensual*. Such attentional seizure can happen in several ways. First, over the last decade, non-consensual advertising has increased in volume and revenue thanks to the

¹²⁹ PHILLIP AREEDA ET AL., *ANTITRUST ANALYSIS* 5–10 (7th ed. 2013) (describing harms intended to be prevented by antitrust).

¹³⁰ See, e.g., Bhattacharya, *supra* note 127; Adam Levy, *Hate Ads on Facebook? They're About to Get Worse*, NEWSWEEK (Feb. 19, 2017), www.newsweek.com/hate-ads-facebook-getting-worse-557630.

¹³¹ See Wu, *Taking Innovation Seriously*, *supra* note 109, at 313.

¹³² Charles L. Black, Jr., *He Cannot Choose but Hear: The Plight of the Captive Auditor*, 53 COLUM. L. REV. 960, 962 (1953).

decreased prices of screens. Consider, for example, the spread of “Gas Station TV”—that is, the televisions embedded in gasoline pumps that bring advertising to the captive pumper as he or she gets gas.¹³³ As the CEO of Gas Station TV puts it, “We like to say you’re tied to that screen with an 8-foot rubber hose for about five minutes.”¹³⁴ Second, as described earlier, agencies face situations where people are in enclosed, regulated spaces for long periods of times, like in airplanes, and must grapple with the rules for such situations.

Let us discuss non-consensual advertising first. From the neurological research discussed above, it is clear that advertisements, when they use motion and sound, are extremely difficult if not impossible to ignore due to the involuntary responses of the brain.¹³⁵ It is true that one might argue that we are responsible for placing ourselves in a position to be exposed. That is why the most clearly non-consensual taking of attention happens when we are in situations where we are compelled to be there and are unable to escape—in the position that First Amendment jurisprudence refers to as being a “captive audience.” The captive audience doctrine originated in the late 1940s in cases like *Kovacs v. Cooper*, which concerned a city ban on sound trucks that drove around broadcasting various messages at loud volume so as to reach both pedestrians and people within their homes.¹³⁶ The Court wrote that “[t]he unwilling listener is not like the passer-by who may be offered a pamphlet in the street but cannot be made to take it. . . . [H]e is practically helpless to escape this interference with his privacy by loud speakers except through the protection of the municipality.”¹³⁷ There are situations—on airplanes, at the gas pump, and so on—where one is simply incapable of escaping, as Black put it, “whatever some crowd of promoters want to throw at it.”¹³⁸

It seems undeniable that at least some of the time we end up captive audiences, involuntarily subjected to sounds and images that we cannot ignore. But does this really amount to more than a mere annoyance? It might be protested that seconds, or at most minutes of seized attention are matters too trivial to be taken seriously by the law—*de minimis non curat lex*.

¹³³ See GSTV, gstv.com.

¹³⁴ See Tom Walsh, *Gas Station TV Moves Pumps More Growth into Downtown*, DETROIT FREE PRESS (Apr. 12, 2015), www.freep.com/story/money/business/columnists/tom-walsh/2015/04/11/gasstation-tv-gilbert/25527645/.

¹³⁵ See *supra* text accompanying notes 57–58.

¹³⁶ See *Kovacs v. Cooper*, 336 U.S. 77 (1949).

¹³⁷ *Id.* at 86–87.

¹³⁸ Black, *supra* note 132.

Charles Black, addressing this very point—that non-consensual advertising was nothing more than “a bit of a fuss about nothing”—answered:

Subjecting a man, willy-nilly and day after day, to intellectual forced-feeding on trivial fare, is not itself a trivial matter; to insist, by the effective gesture of coercion, that a man’s right to dispose of his own faculties stops short of the interest of another in forcing him to endure paid-up banality, is not itself banal, but rather a sinister symbol of relative weighting of the independence of the mind of man and the lust to make a buck.¹³⁹

In other words, it really is an unfortunate thing to accept the idea that a seizure of time and mental facilities is a *de minimis* triviality. Sure, we may waste plenty of time as it is, but at least it is ours to waste. It is, in this sense, and as Black later argued,¹⁴⁰ the deprivation of a liberty, more precisely liberty of thought, which is itself a constitutional value. As Justice Cardozo put it, “Of that freedom one may say that it is the matrix, the indispensable condition, of nearly every other form of freedom.”¹⁴¹

But we might still insist on some more concrete demonstration of harm—some measure of value lost. In this respect, as in the antitrust discussion, it helps to look at what the industry itself thinks. For when looking not at individual effect, but the aggregate effect, we find that the attention taken, without anything in exchange, is sometimes quite valuable. We may observe, for example, that the non-consensual screen advertising (“digital out of home” in the jargon) claims some \$12 billion per year in revenue.¹⁴² We also might also look at individual deals—if Spirit Airlines earns a sum per flight by playing unavoidable in-seat advertising without the consent of its passengers, this provides a clear measure of the value of the attention which has been appropriated.

Measured in more concrete terms it becomes easier to accept the concept known as “attentional theft.”¹⁴³ A typical definition of theft or larceny is the taking of control of

¹³⁹ *Id.*

¹⁴⁰ *See id.* at 963.

¹⁴¹ *Palko v. Connecticut*, 302 U.S. 319, 327 (1937).

¹⁴² *See* Press Release, Cision PRweb (PQ Media), Global out-of-Home Media Revenues Up 6.2% in 2016, (Jan. 10, 2017) www.prweb.com/releases/2016/12/prweb13943072.htm.

¹⁴³ *See* Tim Wu, *The Crisis of Attention Theft—Ads that Steal Your Time for Nothing in Return*, WIRED (Apr. 14, 2017), www.wired.com/2017/04/forcing-ads-captive-audience-attention-theft-crime/.

property or a resource “under such circumstances as to acquire the major portion of its economic value or benefit.”¹⁴⁴ Here, the time taken has its economic value lost to the consumers and transferred to the airline for resale. Conceptual support comes also from the common-law tort of conversion, which is currently defined by the *Restatement* as an intentional act of “dominion or control over a chattel which so seriously interferes with the right of another to control it that the actor may justly be required to pay the other the full value of the chattel.”¹⁴⁵ In recent years, a number of courts have expanded the concept of conversion to reach purely intangible property or resources, like domain names, electronic computer data, and personal records.¹⁴⁶ The point is not that anyone is actually criminally liable, or that a tort action would actually lie. It is, rather, that the underlying concept of harm may support the adoption of policy designed to protect the resource.

Nor should this essay be taken as suggesting that all display advertising—posters, television, and so on—be barred as a seizure of attention. Instead, it only suggests that the consent concept should be key for regulators who want to protect consumers from non-consensual attentional theft. Consent models are, of course, commonplace among legal regimes that regulate social interactions. For example, when it comes to physical or sexual contact, consent is usually a defense to a battery or rape charge.¹⁴⁷ Implicit consent forms an obvious model for thinking about intrusions upon attention, or more technically, upon the brain.

When it comes to attentional theft, we should construe implicit consent to apply broadly to most social contexts and exchanges. By walking down the street, one should be understood to be necessarily consenting to seeing advertising posters and all manner of other involuntary attentional intrusions, from the sirens on fire trucks, to other people, to fast-moving cars. And, as discussed earlier, we regularly agree to sell our attention by, for example, agreeing to watch advertising in exchange for “free” television programming. Thus, our analysis should pay special attention to context and focus on situations where one becomes a captive audience.

¹⁴⁴ N.Y. PENAL LAW § 155.00 (McKinney 2000).

¹⁴⁵ RESTATEMENT (SECOND) OF TORTS § 222A(1) (AM. LAW INST. 1965).

¹⁴⁶ See, e.g., *Thyoff v. Nationwide Mut. Ins. Co.*, 8 N.Y.3d 283 (2007); *Kremen v. Cohen*, 337 F.3d 1024 (9th Cir. 2003) (applying California law); *Superior Edge, Inc. v. Monsanto Co.*, 44 F. Supp. 3d 890 (D. Minn. 2014) (applying Missouri law); *In re Yazoo Pipeline Co., L.P.*, 459 B.R. 636 (Bankr. S.D. Tex. 2011) (applying Texas law).

¹⁴⁷ See, e.g., N.Y. PENAL LAW §§ 120.00, 130.05, 130.10 (McKinney 2000).

The approach explored here also gives lawmakers and regulators a means of thinking about rules for regulated environments, like airplanes, where passengers may subject each other to loud annoyances, like phone conversations. For most of us, it is not hard, intuitively, to see why it might be annoying to spend an entire flight next to a person who has chosen to spend the flight speaking loudly on a telephone. But as we've seen above, consumer protection regulators, centered on the legal standard of policing "unfair and deceptive practices,"¹⁴⁸ have struggled to find a framework to give consumers the protections that they obviously want.

I'd suggest the following principles that local, state, or federal lawmakers or regulators should keep in mind:

- Attention is a valuable resource belonging to consumers to be spent or allocated as they wish.
- Regulators should protect consumers from non-consensual and entirely uncompensated transfers of attentional resources.
- While in many environments, attention is freely given, regulators should protect consumers when they are captive audiences, unable to make a meaningful choice about how their attention is spent.
- Regulators should also protect citizens from intrusions that are unavoidable due to high volume, bright flashing lights, and so on, especially in their homes.

These principles might, for example, lead a locality or state legislature to ban the uncompensated transfer from a captive audience implicit in Gas-Station TV, unless, perhaps, a discount on gas is offered in exchange for being exposed to the advertising. The approach also helps justify laws already in existence that protect the public against attentional seizure. Most municipalities, for example, have regimes that govern excessive noise, which protect people from noise while they are captive in their homes. For example, the Los Angeles Municipal Code has a "Noise Regulation" section that prohibits

¹⁴⁸ See, e.g., 49 U.S.C. § 41712 (empowering the Department of Transportation to investigate unfair or deceptive practices or unfair methods of competition); 15 U.S.C. § 45 (empowering the Federal Trade Commission to prevent the use of unfair or deceptive practices or unfair methods of competition).

“unnecessary, excessive and annoying noises from all sources.”¹⁴⁹ The city has enacted complex regulations that, for example, require miniature golf operators to post signs “[r]equesting patrons to refrain from unnecessary noise.”¹⁵⁰ New York City, surely one of the noisier cities in the world, has a complex set of noise regulations,¹⁵¹ such as an (unenforced) ban on honking in situations other than in response to actual dangers, and a ban on some types of car alarms.¹⁵² Federal and local governments regulate highway billboards, and many ban digital billboards—billboards that change shape and sometimes flash in order to gain attention.¹⁵³

These various laws were not, of course, enacted to protect attentional resources as discussed in this essay, but for aesthetic reasons, or occasionally for public safety reasons (like the ban on blinking highway bulletins).¹⁵⁴ But they might be additionally better justified as a protection of resources that belong to the public that are being appropriated without consent.

As an example of how consumer protection regulators might proceed, let us return to our discussion of telephone calls on passenger airline flights. As discussed above, regulators already know that many passengers prefer the ban based on the premise that overheard phone conversations are irritating and annoying.¹⁵⁵ Yet such concerns do not translate well into the formal logic or cost-benefit analysis that agencies depend on, which tends to depend on more concrete demonstration of injury or some form of deception.¹⁵⁶

¹⁴⁹ L.A., CAL., MUN. CODE ch. 11 (1973).

¹⁵⁰ *See id.* art. 4 § 41.44(c).

¹⁵¹ Many of which are not fully enforced. *See* Matt Flegenheimer, *Stop the Honking? New York Suggests It's a Lost Cause*, N.Y. TIMES (Jan. 28, 2013), www.nytimes.com/2013/01/29/nyregion/new-york-removes-no-honking-signs.html.

¹⁵² In 2004, New York City's City Council passed a more comprehensive ban on the sale of car alarms, but the measure was vetoed. *See* Winnie Hu, *City Council Ban Car Alarm Sales, but a Mayoral Veto Looms*, N.Y. TIMES (July 22, 2004), www.nytimes.com/2004/07/22/nyregion/city-council-bans-car-alarm-sales-but-a-mayoral-veto-looms.html?_r=0.

¹⁵³ *See, e.g.,* *Scenic Arizona v. City of Phoenix Bd. of Adjustment*, 268 P.3d 370 (Ariz. Ct. App. 2011).

¹⁵⁴ *See, e.g.,* Highway Beautification Act of 1965, Pub. L. No. 89-285 § 131(a), 79 Stat. 1028 (“[T]he erection . . . of outdoor advertising signs . . . should be controlled in order to protect the public investment in such highways, to promote the safety and recreational value of public travel, and to preserve natural beauty.”).

¹⁵⁵ *See* 81 Fed. Reg. 90, 258, *supra* note 40 (discussing comments).

¹⁵⁶ *See* 81 Fed. Reg. 90,258, *supra* note 40 (justifying the proposed rule on voice calls based on unfair and deceptive practices).

Armed with a better understanding of the science of attention, agencies might be in a better position to consider policy problems of this nature. For example, in the airplane rulemaking, an agency consulting the relevant scientific literature might find particular reasons to ban telephone conversations. Several studies have tested the effect of overheard half conversations (“a halfalogue”) on the attentional facilities. In a study conducted at Cornell, subjects were asked to perform cognitive tasks while, in the background, a one-sided conversation was held; a control group listened to two-sided conversations or a monologue. The study confirmed the hypothesis that the halfalogue “[drew] on limited attentional resources” resulting in “poorer performance in concurrent tasks.”¹⁵⁷ In short, there were cognitive impairments inflicted on victims by overheard phone conversations.¹⁵⁸ And as the discussion of attention markets reveals, this is an injury with a known value, based on the value of attention in the economy.¹⁵⁹ Such research may suggest alternative justifications for imposing a ban on telephone conversations in airplanes and other highly confined regulated spaces. Hence, both the science and economics of attention and cognitive degradation may be of use to regulators, like the Department of Transportation, which are actively considering such questions.

One might hear the objection, once again, that the harm seems too exotic or minimal to take seriously. But by way of comparison we might consider the story of second-hand smoke on airlines. It was once common for passengers to smoke on planes, despite the fact that the smoke invariably spread to the entire airplane. As early as 1969, groups petitioned the Federal Aviation Administration to impose limits on smoking aboard passenger aircraft, based on health effects.¹⁶⁰ The agency, however, did not take the issue seriously, and through the 1980s airlines continued to have a smoking section.¹⁶¹ Despite evidence of harm to flight attendants,¹⁶² the idea of banning smoking on board was seen as impractical. Representative Arlan Stangeland argued that “a

¹⁵⁷ See Emberson, *supra* note 47, at 1384.

¹⁵⁸ *Id.*

¹⁵⁹ See *supra* Part I.E.

¹⁶⁰ See AIR QUALITY IN AIRPLANE CABINS AND SIMILAR ENCLOSED SPACES 311 (Martin B. Hocking & Diana Hocking eds., 4th ed. 2005).

¹⁶¹ See *id.*

¹⁶² *To Ban Smoking on Airline Aircraft: Hearing Before the Subcomm. on Aviation of the H. Comm. on Public Works and Transportation*, 101st Cong. 1 (1989) at 390 (submission documenting health effects suffered by flight attendants).

smoking ban could create an onboard fire hazard, by encouraging surreptitious smoking, especially in lavatories.”¹⁶³As chief regulator Dan McKinnon stated in 1984, “My sympathy and philosophy say the nonsmokers have rights, but the realities of life say it just won't work in the real world”; meanwhile, the airlines stressed that they were “unalterably opposed to any arbitrary and discriminatory ban on smoking.”¹⁶⁴ However, by the late 1980s, the weight of scientific evidence of harm finally convinced Congress to ban smoking on board.¹⁶⁵ In retrospect, while perhaps no individual passenger died from being aboard a smoke-filled plane, in the aggregate, the smoke was undeniably doing harm. And once this was taken seriously, the political and social will necessary to ban smoking on planes became apparent.¹⁶⁶ Hence, as with the evolution in thinking about public health, over time, and from that perspective, we may find that government is in some contexts doing far too little to protect us from the bombardment.

IV. CONCLUSION

It is a truism that law needs to constantly adapt to changing conditions, including technological, social, and economic changes and advances in our scientific understanding or our world and ourselves. Over the last half-decade, one of the most important yet most poorly understood changes has been both a better understanding of the science of attention, along with the business models that depend not the sale of goods or services, but on the resale of attention. This may actually reflect something even deeper—an ongoing transformation in our sense and understanding of value. If value, as recently as a few decades ago, was understood to mainly subsist in physical objects, it has steadily shifted toward abstractions like intellectual property, data, and human attention. This essay has discussed the challenges posed by just one of those abstractions. Yet it stands

¹⁶³ *Id.* at 12.

¹⁶⁴ See Irvin Molotsky, “No-Smoking Rule Is On And Off Again,” N.Y. TIMES, June 1, 1984, at 1.

¹⁶⁵ Congress first banned smoking on domestic flights lasting less than two hours. Act of Nov. 21, 1989, Pub. L. No. 101-164, 103 Stat. 1069. A full ban on smoking on airplanes took effect on June 4, 2000, under § 708 of the Wendell H. Ford Aviation Investment and Reform Act for the 21st Century, Pub. L. No. 106-181, 114 Stat. 61 (2000); see also Prohibition of Smoking on Scheduled Passenger Flights; Final Rules, 65 Fed. Reg. 36, 771 (June 9, 2000) (implementing § 708).

¹⁶⁶ See AIR QUALITY IN AIRPLANE CABINS AND SIMILAR ENCLOSED SPACES, *supra* note 160.

to reason that as our conception of value becomes increasingly abstract, the kind of challenges identified by this essay will only grow in importance.