

Blind Spot: The Attention Economy and the Law

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Abstract

An increasingly large and important sector of the economy, including well-known firms like Google and Facebook, now depends on attentional markets. This development has created a blind spot that affects the antitrust and consumer protection laws, which are premised on cash markets and monetary harms. As a correction, this paper introduces a new means of assessing competition in attentional markets centered on “attention brokerage.” In antitrust, it gives a better sense of the market power of contemporary firms like Facebook, whose power is mainly in attentional markets. In the realm of consumer protection, it provides regulators with a paradigm for protecting captive audiences from cognitive impairments caused by non-consensual seizure of attention.

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I. Introduction

Human attention, both 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 near-exclusively on the attentional markets as a business model.³

¹ See, e.g., Mathew Ingram, *The attention economy and the implosion of traditional media*, FORTUNE (Aug. 12, 2015), <http://fortune.com/2015/08/12/attention-economy/>.

² See BRAVE SOFTWARE, *Basic Attention Token (BAT)*, May 29, 2017, <https://basicattentiontoken.org/index/BasicAttentionTokenWhitePaper-4.pdf>.

³ See *infra* Section III.a.

Yet despite the well-recognized commercial importance of attention markets, the law struggles when it encounters the attention economy. In particular, the laws that emphasize consumer welfare – especially the antitrust laws and consumer protection regulations – have growing blind spots caused by this challenge.⁴ Antitrust agencies currently lack tools for assessing a firm like Google or Facebook, whose power lies in attention markets. When faced with mergers or potentially anti-competitive conduct in this space, the antitrust agencies have struggled to come up with an analysis that gives appropriate weight to attentional power.⁵

Meanwhile, the agencies tasked with consumer protection, such as the Federal Trade Commission, Department of Transportation, or the State Attorney Generals, have no good paradigm for dealing with some of today’s attentional intrusions⁶ – those intrusions which seize time and attention, causing cognitive impairment as opposed to financial injury. In controversies surrounding telephony on airlines, or non-consensual and intrusive advertising, the agencies are reduced to considerations of “deception” or financial loss,⁷ which are inapposite to the harms complained of and the challenge presented.

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 “attentional industry,” the businesses that depend on the resale of attention.⁸ This essay builds on that work with a novel approach: a focus 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 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 Broker’s activities are critical to the operation of attention markets, for the business model creates much of the competition for attention that this paper describes.⁹

⁴ See *infra* Sections II.a, IV.A, IV.B.

⁵ See *infra* Section IV.A.

⁶ See *infra* Sections II.b, IV.B.

⁷ See *infra* Sections II.b, IV.B.

⁸ See TIM WU, *THE ATTENTION MERCHANTS: THE EPIC SCRAMBLE TO GET INSIDE OUR HEADS* (2016).

⁹ See *infra* Part III.

As applied to antitrust, a focus on attention brokerage makes possible an analysis based on attentional markets that weighs *time spent* (a proxy for attention) as the appropriate means of measuring market power. This metric gives a different, and arguably more accurate picture of industries like social media, and is therefore important for analysis of future mergers or any broader case alleging anticompetitive monopoly maintenance in violation of the Sherman Act. For consumer protection, while the intrusions described here are the subject of consumer complaints,¹⁰ the analysis used here gives regulators a more concrete approach to assessing harms that are not financial or deceptive but related to seizure of consumer attention as a resource.

This Essay begins in Part I by introducing the core challenges raised by attention markets, and then explaining the value of attention and its relationship to traditional models of advertisement. Part II develops the business model of the Attention Broker and discusses pricing decisions and competition in attentional markets. In Part III, I describe the legal implications of attentional analysis, and explain how an approach focused on attentional models and metrics provides regulatory authorities with useful tools to protect the public and to address the antitrust and regulatory problems introduced below.

II. Background

a. The Blind Spot

We may begin with two legal problems, one from antitrust, one regulatory, that demonstrate the challenges that attentional markets create for current laws designed to protect consumers. Antitrust doctrine is centered on “market power,” and markets are generally presupposed to be cash markets where customers spend fiat currency to buy goods or services.¹¹ Consumer harm, under this approach, is primarily measured in terms of higher prices, reduced output, or other money-related harms. Unfortunately, this approach, if reasonable for other industries, has a problematic blind spot when the companies in question give away their products for “free” and are, in fact, competing in attentional markets.¹²

¹⁰ See *infra* note 38 and accompanying text.

¹¹ See *infra* Section IV.A.a.

¹² This paper is not the only work to notice the problem with merger review in this area. For example, Maurice Stucke & Allen Grunes, *Big Data and Competition Policy*, ch. 7 (2016), argue that merger review of many tech mergers fails to take into account the competitive impacts of “big data.”

We can see evidence of the blind spot by examining a merger between two social media companies, like the 2012 merger between Facebook and Instagram.¹³ Given that both are social media networks, but that neither company seems to charge end-consumers for their products, the traditional tools for assessing potential market harm can yield inaccurate results. 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 in competition at the consumer level?

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 reasoning and it is, in retrospect, riddled with errors and absurdities.¹⁴ The office approved the merger based on two main premises. The first was that Facebook did not have an important photo-taking app, meaning that Facebook was not a serious competitor to Instagram in consumer markets.¹⁵ Second, the office observed that (at the time) Instagram was not yet earning advertising revenue, meaning that Instagram was not an important competitor to Facebook for advertisers.¹⁶ Hence, based on an analysis premised upon traditional cash markets, the companies were not competitors, allowing the office to safely conclude that "no substantial competition concerns arise."¹⁷

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 illegal (both under U.S. law, and a substantially similar UK standard) when their effect is to "substantially to lessen competition, or to tend to create a monopoly."¹⁸ Among other things, merger review is supposed to prevent a firm from eliminating "maverick" competitors – those

¹³ The Facebook-Instagram merger was approved in August 2012. See Julie Bort, *The FTC Approves Facebook's Purchase of Instagram*, BUSINESS INSIDER (Aug. 22, 2012), <http://www.businessinsider.com/the-ftc-approves-facebooks-purchase-of-instagram-2012-8>.

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

¹⁵ *Id.* at 4-5.

¹⁶ *Id.* at 5-6.

¹⁷ *Id.* at 3.

¹⁸ 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. HUGHE, *UK MERGER CONTROL: LAW AND PRACTICE* 223 (2005).

that introduce new technologies or business models – that might threaten the incumbent.¹⁹

That “maverick” description fit Instagram, who was once Facebook’s greatest potential rival in the social media attention markets. Back in 2012, both firms already held large shares of the attention devoted to social media, and both were competing for much the same attention – the same hours – that consumers might devote to such things.²⁰ While they were not competing on price (yet), they *were* competing for another metric: attention, measured by user time spent on their sites. And 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.²¹

In retrospect, it seems clear that the antitrust authorities unconditionally allowed Facebook to buy one of its most dangerous competitors, and thereby helped the firm insulate itself from effective competition. It is telling that business analysts thought this obvious at the time. Nicholas Carlson immediately pointed out that Instagram was Facebook’s greatest competitive threat.²² And as TIME wrote in a 2016 retrospective, “Buying Instagram conveyed to investors that the company was serious about dominating the mobile ecosystem while also neutralizing a nascent competitor.”²³

Whether or not the antitrust authorities should have blocked the merger, their failure to take it seriously reveals the blind spot here described, a problem only confirmed by the subsequent approval of similar mergers. For example, in 2013 Google acquired Waze, creating an apparent monopoly in online mapping and navigation, in a

¹⁹ See 2010 Merger Guidelines, *supra* note 63, §2.1.5; Spencer Weber Waller & Matthew Sag, *Promoting Innovation*, 100 IOWA L. REV. 2223 (2015) (describing a Schumpeterian approach to merger review).

²⁰ 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 Constine, *Why The OFT And FTC Let Facebook Buy Instagram: FB Camera Is Tiny, IG Makes No Money, And Google*, TECHCRUNCH (Aug. 22, 2012), <https://techcrunch.com/2012/08/22/ftc-facebook-instagram>.

²¹ See Evelyn M. Rusli, *Facebook Buys Instagram for \$1 Billion*, N.Y. TIMES (Apr. 9, 2012), <https://dealbook.nytimes.com/2012/04/09/facebook-buys-instagram-for-1-billion>.

²² See Nicholas Carlson, *Instagram Was Facebook’s Biggest Threat*, BUSINESS INSIDER (Apr. 9, 2012), <http://www.businessinsider.com/instagram-was-facebooks-biggest-threat-2012-4>.

²³ See Victor Luckerson, *Here’s Proof That Instagram Was One of the Smartest Acquisitions Ever*, TIME (Apr. 19, 2016), <http://time.com/4299297/instagram-facebook-revenue>.

deal quickly approved by the FTC.²⁴ In 2014 Facebook acquired the messaging app WhatsApp, another potential competitor as a rival social network.²⁵ When it came to the WhatsApp merger, business analysts once again had no difficulty that an anticompetitive strategy appeared to be driving the WhatsApp acquisition:

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.'²⁶

When an anticompetitive potential and effect is blatantly obvious to industry observers yet somehow invisible to antitrust enforcers, something may be wrong. As this paper suggests, what is missing is the ability to understand that firms are in fact competing in attentional markets and to countenance the effects of a merger in those terms. Agencies and courts need a better analysis – at a minimum for future review, or even for retrospective review of consummated mergers.

This is not a problem isolated to merger analysis. 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.²⁷ The same goes for investigations of collusive behavior under Section 1 of the Sherman Act. In short, the blind spot may yield an unwarranted immunity to antitrust for firms operating in the attentional economy.

What is needed is an approach to attentional markets that gives the antitrust agencies the ability to consider the concepts currently used in cash markets: that is, crucial concepts like “market power,” “pricing,” “market entry” and product substitution. It is the goal of this essay to introduce tools and approaches, centered on a new model of attention markets and attention brokerage, that may help.

²⁴ See Melissa Grey, *FTC will not challenge Google's \$1 billion Waze acquisition*, ENGADGET (Oct. 1, 2013), <https://www.engadget.com/2013/10/01/ftc-will-not-challenge-google-waze-acquisition/>.

²⁵ See Parmy Olson, *Facebook closes \$19 billion WhatsApp deal*, FORBES (Oct. 6, 2014), <https://www.forbes.com/sites/parmyolson/2014/10/06/facebook-closes-19-billion-whatsapp-deal/#7885fbf45c66>.

²⁶ See Henry Blodget *Everyone Who Thinks Facebook Is Stupid To Buy WhatsApp For \$19 Billion Should Think Again*, BUSINESS INSIDER (Feb. 20, 2014), <http://www.businessinsider.com/why-facebook-buying-whatsapp-2014-2>.

²⁷ See *infra* notes 115-16 and accompanying text.

b. *Attentional Harms*

In addition to shortcomings in the antitrust law, this Essay will also examine the current weaknesses of regulatory and consumer protection mandates to address the problem of attentional intrusions and so-called “attention theft.” 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 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.²⁸ 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.²⁹

Attention theft is relevant to contemporary regulatory debates such as that centering on the conditions of air travel. In 2016, the Department of Transportation opened a proceeding regarding the use of telephones or other telephony devices on passenger airplanes.³⁰ There has long been a ban on cell phone usage on airplanes justified by potential interference with traffic control communications, but changes in technologies, including the introduction of WiFi on flights, have renewed the question of what might justify a ban on airplane telephony.³¹

For problems like this, which evoke considerable public interest and comment,³² 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

²⁸ See discussion *infra* Section III.B.

²⁹ See discussion *infra* Section IV.B.

³⁰ See U.S. DEP’T OF TRANSP., DOT 152-16, *DOT Proposes Rule to Protect Airline Passengers From Being Unwillingly Exposed to Voice Calls on Aircraft* (Dec. 8, 2016), <https://www.transportation.gov/briefing-room/dot-proposes-rule-protect-airline-passengers-being-unwillingly-exposed-voice-calls>.

³¹ Among other reasons, because WiFi 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), <https://www.cnet.com/news/fcc-considers-lifting-cell-phone-ban-on-planes>.

³² See Bart Jansen, *Wi-Fi calls on planes OK? Answer is loud and clear: No*, USA TODAY (Feb. 12, 2017), <https://www.usatoday.com/story/news/2017/02/12/plane-flights-voice-calls/97822422/>.

inapposite concepts of “consumer deception” as against “letting the market decide.”³³ A deception framework was, consequently, 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.³⁴ 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 requirements are designed to ensure that consumers are adequately informed, in advance, that voice calls will be permitted.”³⁵

To say that this did not address the public’s concerns would be an understatement. The public and other groups, like flight attendants,³⁶ were not complaining about deception, but making a more obvious point (sometimes 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...”;³⁷ or another “Can you imagine hundreds of people confined in a small space all yelling into their phones for the entire duration of a flight?”³⁸ The agency itself estimated that 96% of the comments received since it proposed new rules have supported a full ban on telephony on airplanes.³⁹

What has been missing from the debate is some more concrete means of capturing the injury which passengers are complaining about. However vividly phrased, the consumer complaints do not manage to suggest harm in a manner that federal consumer protection agencies are equipped to process.⁴⁰ This paper 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.⁴¹ There is even a literature studying the particular effects of overheard telephone conversations on attention, memory, and cognitive

³³ For a summary of comments, see Use of Mobile Wireless Devices for Voice Calls on Aircraft, 81 Fed. Reg. 90258 (Dec. 14, 2016) (notice of proposed rulemaking).

³⁴ See U.S. DEP’T OF TRASP., *supra* note 30.

³⁵ See *supra* note 33.

³⁶ See summary of comments, *supra* note 33.

³⁷ See Jansen, *supra* note 32.

³⁸ Anonymous Comment on Proposed Rule to Limit the Use of Mobile Wireless Devices for Voice Calls on Aircraft (Jan. 3, 2017), <https://www.regulations.gov/document?D=DOT-OST-2014-0002-3735>.

³⁹ See *supra* note 33.

⁴⁰ See *infra* notes 155-61 and accompanying text.

⁴¹ See *infra* notes 53-54 and accompanying text.

abilities.⁴² By adopting such tools and scientific research, the regulatory agencies might better fulfill their mandate of protecting consumers.

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.

c. Attention and How it is Spent

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.⁴³

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.”⁴⁴

Over the last several decades, scientists have largely confirmed the physical basis for the James model.⁴⁵ 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

⁴² See, e.g., Veronica V. Galván et al., *The Effects of Cell Phone Conversations on the Attention and Memory of Bystanders*, PLOS ONE (March 13, 2013), <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0058579>; Lauren L. Emberson et al., *Overhead Cell Phone Conversations: When Less Speech is More Distracting*, 21 PSYCHOL. SCI. 10 (March 30, 2010); Andrew Monk et al., *Why are mobile phones annoying*, 23 BEHAV. & INFO. TECH. 1, 23, 33-41 (2004).

⁴³ One author notes that the following words are sometimes considered synonyms for attention: “arousal, effort, capacity, perceptual set, control, and consciousness.” EDWARD SMITH, COGNITIVE PSYCHOLOGY: MIND AND BRAIN 105 (2006).

⁴⁴ 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.

⁴⁵ Typical summaries of the attentional model can be found in THE BLACKWELL HANDBOOK OF SENSATION AND PERCEPTION ch. 9 (E. Bruce Goldstein ed. 2004); MICHAEL I. POSNER, COGNITIVE NEUROSCIENCE OF ATTENTION (2d ed. 2011); EDWARD E. SMITH & STEPHEN M. KOSSLYN, COGNITIVE PSYCHOLOGY: MIND AND BRAIN ch. 3 (2006).

presented with too much information (by the sense organs) for the brain to process (ten million bits per second, by one estimate).⁴⁶ In the same way that our skin creates a 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.⁴⁷ 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.⁴⁸ 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.”⁴⁹ 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.”⁵⁰ 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.⁵¹

⁴⁶ Kristin Koch et al., *Efficiency of Information Transmission by Retinal Ganglion Cells*, 14 CURRENT BIOLOGY 1523 (2004); see also THE NEW COGNITIVE NEUROSCIENCES ch. 47 (Michael S. Gazzaniga ed., 2000).

⁴⁷ For a review of competing theories of processing capacity, see Sarter et al., *More attention must be paid: The neurobiology of attentional effort*, 51 BRAIN RESEARCH REVIEWS 145 (2006).

⁴⁸ See Christopher Chabris & Daniel Simons, *Gorillas in our midst: sustained inattentive blindness for dynamic events*, 28 PERCEPTION 1059 (1999); CHRISTOPHER CHABRIS & DANIEL SIMONS, THE INVISIBLE GORILLA: AND OTHER WAYS OUR INTUITIONS DECEIVE US (2010).

⁴⁹ 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.

⁵⁰ See Timothy J. Buschhman & Earl K. Miller, *Top-Down Versus Bottom-Up Control of Attention in the Prefrontal and Posterior Parietal Cortices*, 315 SCIENCE 1860 (2007).

⁵¹ SMITH & KOSSLYN, *supra* note 45, at ch. 3 gives a straightforward explanation of the “top down” and “bottom up” attentional model. 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

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 paper. Certain triggers – moving images, loud noises, bright colors – will attract attention without a voluntary decision being made.⁵² The reaction, as scientists have shown, is automatic and like a reflex.⁵³ 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.⁵⁴ As such, the decisions are not necessarily that different than 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.⁵⁵ And we

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

⁵² See *id.*

⁵³ See *id.*

⁵⁴ See *id.* at 3-5 for an analysis of how attentional decisions are made.

⁵⁵ 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.

can now see that our attentional decisions can be compared to other consumer decisions, such as spending money.

d. 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 19-49 demographic).⁵⁶ *O Magazine*, (owned by Oprah Winfrey) tells advertisers it "reaches 1 in 14 women in America and more adults 18-49 than *Modern Family*, *The Bachelor*, and *How To Get Away With Murder*."⁵⁷ 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% of whom buy their own motor oil.⁵⁸ Their attention is obviously more valuable to some than others. In short, the material falling out of the pocket may be gold to one advertiser, but merely silver to another, and worthless to a third.

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

⁵⁶ See Frank Ahrens, *Networks Debate Age Groups' Value to Advertisers*, WASHINGTON POST (May 21, 2004), <http://www.washingtonpost.com/wp-dyn/articles/A44031-2004May20.html>.

⁵⁷ 2017 *O Magazine Media Kit*, O MAGAZINE, http://www.omediatekit.com/hotdata/publishers/oprahmaga3395825/omediatekit7535/pdfs/Media-Kit-2017_FULL.pdf.

⁵⁸ 2016 *Guns & Ammo Media Kit*, GUNS & AMMO, http://www.outdoorsg.com/wp-content/uploads/2014/10/2016_Guns-Ammo_MediaKit.pdf.

receptive to advertising messages.”⁵⁹ Once again, those Attention Brokers who can provide access to specific mental states tend to sell them at a premium.⁶⁰ As I shall suggest below, a more advanced model of the Attention Broker suggests an entity who 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.

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

e. Advertising and the Value of Attention

That human attention is valuable is perhaps most easily captured by how much firms are willing to pay for it. Globally, over \$500 billion was spent on advertising in 2015, and \$180 billion in the United States alone.⁶¹ The analysis of attention just completed 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.”⁶² 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 society becomes increasingly affluent,” he noted, “wants are increasingly created by the process by which they are satisfied.”⁶³

⁵⁹ *Q Media Research 2007*, GLOBAL ONBOARD PARTNERS, http://www.globalonboardpartners.com/wp-content/uploads/2013/05/effectiveness_presentation.pdf.

⁶⁰ See discussion *infra* at Section III.a.

⁶¹ Sydney Ember, *Digital Ad Spending Expected to Soon Surpass TV*, N.Y. TIMES (Dec. 7, 2015), <http://www.nytimes.com/2015/12/07/business/media/digital-ad-spending-expected-to-soon-surpass-tv.html>. Some economists argue that as much as 25% of GDP is spent on “persuasion.” Donald McCloskey & Arjo Klamer, *One Quarter of GDP is Persuasion*, 85 AM. ECON. REV. 191 (1995).

⁶² JOHN KENNETH GALBRAITH, *THE AFFLUENT SOCIETY*, 127 (1998).

⁶³ *Id.*

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 a mouthwash, but we might later find that we want it).⁶⁴ Moving beyond this observation, over the last century economists have proposed alternative theories of what advertising accomplishes.⁶⁵ 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.⁶⁶ 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.”⁶⁷

The branding theory might explain why Pepsi, over the 1950s, despite being far cheaper and offering a similar product, nonetheless could not gain market share against Coca-Cola.⁶⁸ Coke, in the 1950s, had the reputation as the “brand beyond competition.”⁶⁹ Its advertisements had succeeded not just in persuading consumers, but in ensnaring them, creating a brand loyalty that defied the usual assumptions of microeconomics.⁷⁰ This view of advertising led to the conclusion that advertising could serve anti-competitive purposes because it deterred switching between products.

⁶⁴ There was once (and there may remain) resistance among some economists to the theory that advertising can influence demand, a matter discussed at some length by GALBRAITH, *supra* note 62.

⁶⁵ See, e.g., Kyle Bagwell, *The Economic Analysis of Advertising*, in HANDBOOK OF INDUSTRIAL ORGANIZATION 1701-1844 (Mark Armstrong & Robert H. Porter, eds., 2007).

⁶⁶ *Id.*

⁶⁷ WILLIAM S. BROWN, PRINCIPLES OF ECONOMICS 316 (1995).

⁶⁸ 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 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.”).

⁶⁹ 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”).

⁷⁰ 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.

Another, and perhaps 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”).⁷¹ Under this theory, advertising exists to deal with missing consumer 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).⁷² 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,⁷³ 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 paper, and develop the equivalents of pricing, market entry, market definition and other concepts.

III. Attentional Markets, Brokers, and Competition

a. The Rise of the Attentional Industry

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.”⁷⁴ The newspapers were sold for a penny, which was below the cost of printing. However, the papers

⁷¹ 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).

⁷² Gary S. Becker & Kevin M. Murphy, *A Simple Theory of Advertising As Good or Bad*, 108 Q.J. ECON. 941 (1993).

⁷³ See Bagwell, *supra* note 65.

⁷⁴ 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 8.

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 remarkable number of media and other industries.⁷⁵ 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.⁷⁶ The purpose of this paper 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 paper, 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.⁷⁷ 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.⁷⁸ 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.⁷⁹

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).

⁷⁵ See WU, *supra* note 8, Chs. 1-19.

⁷⁶ See *id.* Chs. 20-28.

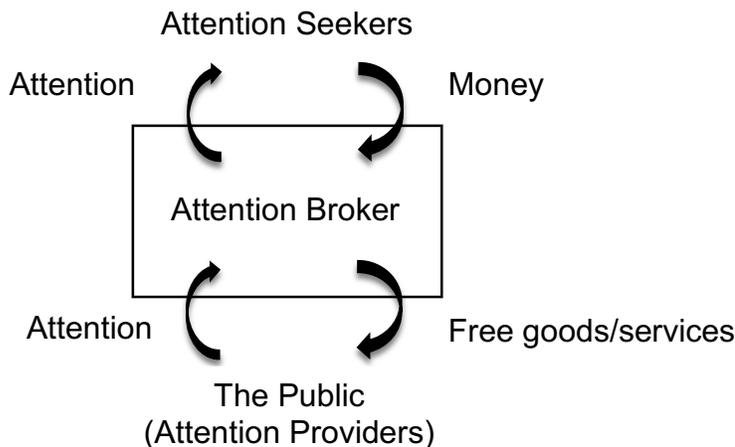
⁷⁷ See Jean-Charles Rochet & Jean Tirole, Two-Sided Markets: An Overview, presented at The Economics of Two-Sided Markets, Toulouse, France, January 23–24, 2004.

⁷⁸ See *id.*

⁷⁹ See *id.*

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 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.

Figure 1: The Attention Broker’s Business Model



Recalling an earlier illustration, we might think of the spender of attention as like a man with the 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 gentleman 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 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.⁸⁰

b. Pricing Decisions in Attentional 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.

⁸⁰ See Ryan Singel, *Analysis: Google's ad targeting turns algorithms on you*, WIRED (March 11, 2009), <https://www.wired.com/2009/03/google-ad-annou/>.

This model helps explain why, since at least the 1970s or so, advertisers have tried with various degrees of success to create advertising that audiences want to watch – or failing that, they have aimed for advertising that is at least not so annoying.⁸¹ Logically, advertising is just a form of information, and therefore might be useful or otherwise desirable.⁸² Few people, for instance, complain about classified advertisements, or a coupon that comes at just the right time and saves you money. If an advertiser manages to create advertising that is desirable, he erases the dilemma just described, and allows the resale of attention without extracting some cost from consumers.

There are some well-known examples of advertising that have succeeded in minimizing or eliminating product degradation. Super Bowl advertisements, for example, are widely watched for their entertainment value,⁸³ and the advertisements in fashion magazines like *Vogue* are considered by many readers to be part of the attraction.⁸⁴ At another level, music videos on networks like MTV are sometimes described as a form of advertising,⁸⁵ while movies like *Transformers* or *The Lego Movie* can be seen as enjoyable advertisements for toys.⁸⁶ The longstanding goal of “targeted” advertising on the web has been to display ads that users “want.”⁸⁷

All these efforts notwithstanding, it is far easier to say that advertising should be desirable than to make it so. Advertising, to be effective, cannot aim 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

⁸¹ For examples of efforts in this vein, see WU, *supra* note 8 at 179-180.

⁸² As discussed in the informational theories of advertising, *supra* notes 71-72 and accompanying text.

⁸³ Robert Klara, *Why the Super Bowl is the One Time of Year People Actually Want to Watch Ads*, ADWEEK (Feb. 2, 2017), <http://www.adweek.com/brand-marketing/why-the-super-bowl-is-the-one-time-of-year-people-actually-want-to-watch-ads/>.

⁸⁴ See, e.g., Meghan Blalock, *Why I Think Ads Are the Best Part of Fashion Magazines*, WHO WHAT WEAR (March 16, 2015), <http://www.whowhatwear.com/fashion-magazine-ads>.

⁸⁵ For the song itself, as well as other products. See Joseph Plambeck, *Product Placement Grows in Music Videos*, N.Y. TIMES (July 5, 2010), <http://www.nytimes.com/2010/07/06/business/media/06adco.html>.

⁸⁶ See Noah Kristula-Green, Opinion, *The Lego Movie isn't a great film, it's a brilliant commercial*, THE GUARDIAN (Feb. 19, 2014), <https://www.theguardian.com/commentisfree/2014/feb/19/lego-movie-is-great-commerical>.

⁸⁷ For a history of Google's efforts to create desirable advertising see STEVEN LEVY, *IN THE PLEX: HOW GOOGLE THINKS, WORKS, AND SHAPES OUR LIVES* 94 (2011).

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 & 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 web sites, many web sites 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

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

⁸⁹ See *supra* Section III.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), <http://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).

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

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

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, in contrast, following the traditional revenue maximization strategy and running as many ads as it could.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 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

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), http://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 The acquisition of rivals Instagram and WhatsApp is discussed *supra* text accompanying notes 13 to 26.

⁹⁸ *See, e.g.,* Brittany Darwell, *The Year in Facebook Advertising 2012*, *ADWEEK* (Dec. 31, 2012), <http://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), <http://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), <http://www.forbes.com/sites/insertcoin/2013/07/01/facebooks-advertising-is-starting-to-spiral-out-of-control/#7cd83960204e>.

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

¹⁰⁰ Predatory pricing is defined in WILLIAM GREENE, *PREDATORY PRICING* 2-3 (1993).

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.

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

¹⁰¹ See Murphy, *supra* note 93. Such revolts are extensively detailed in WU, *supra* note 8.

¹⁰² See *The 2015 AdBlocking Report*, PAGEFAIR (Aug. 10, 2015), <https://blog.pagefair.com/2015/ad-blocking-report/> (noting that ad blocking grew by 41% globally between 2014 and 2015).

¹⁰³ As argued in WU, *supra* note 8, at 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.

¹⁰⁴ See Kenneth Clark, *Networks Put Big Guns Muzzle-to-muzzle In An All-out Ratings War*, CHICAGO TRIBUNE (May 27, 1986), http://articles.chicagotribune.com/1986-05-27/features/8602070888_1_miami-vice-time-slots-starman.

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.

Understanding the greenfield strategy can help us understand why, for example, a company like Google, whose business is the resale of attention, might spend so much money on an apparently tangential invention like the self-driving car.¹⁰⁷ The research effort makes more sense if one pauses to consider how much time and attention is currently spent driving. An understanding of attentional markets makes it clear that the time and attention spent, say, navigating a left-hand turn, makes for a ripe opportunity. The capture of even some of that time may therefore justify current efforts to design self-driving cars.

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.

¹⁰⁵ See WU, *supra* note 8.

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

¹⁰⁷ See Daisuke Wakabayashidec, *Google Parent Company Spins Off Self-Driving Car Business*, N.Y. TIMES (Dec. 13, 2016), <https://www.nytimes.com/2016/12/13/technology/google-parent-company-spins-off-waymo-self-driving-car-business.html>.

IV. Antitrust and Consumer Protection

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 article. As large and acquisitive companies, they are also subject to frequent antitrust scrutiny.¹⁰⁸ 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. This section, after providing a brief introduction to the relevant law that can be skipped by experts, strongly suggests that antitrust enforcers should take attentional markets and metrics into consideration in the review of large mergers in this area, and also in monopolization and restraint-of-trade cases.

d. Market Power and the Antitrust Laws

In contemporary antitrust law, the concepts of the “market” and “market power” are both of central importance and among the most contested issues in any case. That is because, with only a few exceptions (known as “per se” violations), antitrust doctrine now requires either proof or demonstrated likelihood of harm to competition before action will lie.¹⁰⁹ The most straightforward means to prove or refute any theory of harm or potential harm is to assert or deny that the defendant, or defendants, possess enough economic power in their markets (known as “market power”) to influence prices or otherwise hurt competition. Hence, for example, in a case alleging anticompetitive conduct under Section 2 of the Sherman Act, the defendant, if conceding that the conduct occurred, may deny that it had sufficient power to actually harm competition.¹¹⁰ Similarly, in a typical merger case proceeding under the authority of the Clayton Act,¹¹¹ the government will allege that the combined entity, with an increased level of market

¹⁰⁸ See discussion of the Facebook-Instagram and Google-Waze mergers, *supra* notes 13-26 and accompanying text.

¹⁰⁹ In some scenarios harm is presumed. The most prominent is price-fixing, or agreeing to set prices, which remains *per se* illegal, or illegal without proof of harm. See *United States v. Socony-Vacuum Oil Co.*, 310 U.S. 150 (1940).

¹¹⁰ Technically, monopoly power, which is greater than market power, is required under *United States v. Grinnell Corp.*, 384 U.S. 563, 570 (1966).

¹¹¹ 15 U.S.C § 18 (1988). In practice, the Merger Guidelines issued by the Justice Department and Federal Trade Commission govern merger review. *Horizontal Merger Guidelines*, U.S. DEPARTMENT OF JUSTICE (Aug. 19, 2010), <https://www.justice.gov/atr/horizontal-merger-guidelines-08192010>.

power, will be able to raise prices, exclude competitors, or otherwise damage competition in the market. The defendant will usually insist that, even after the merger, the company will remain too powerless to actually do anything that might be harmful to competition. All of these assertions depend on a key question: does or will the entity have enough market power “to make a difference?”¹¹²

The concept of economic or market power is, technically speaking, the power to raise prices above competitive levels, or otherwise influence markets.¹¹³ It reflects the intuition that there is something very different about what happens when a monopolist (say, Microsoft circa 1998) raises prices, as opposed to a business in a highly competitive market (say, a New York pizza restaurant). The monopolist faces no competition, and will be able to sustain its price increase, and thereby hurt consumers. In contrast, the pizza restaurant that operates in a market where \$2 slices are the accepted price will only hurt itself by raising its price because consumers will patronize competitors instead.¹¹⁴

Doctrinally, a market power element has been incorporated into the main tests that animate contemporary antitrust and merger practice. Section 1 of the Sherman Act bans “restraints of trade,” and the “rule of reason” analysis that is a mainstay of § 1

¹¹² *California Dental Assn. v. FTC*, 526 U.S. 756, 782 (1999) (Breyer, J., concurring).

¹¹³ The implication is that lacking such power, a firm would be constrained by market competition. For a much more detailed introduction, see Thomas G. Krattenmaker et al., *Monopoly Power and Market Power in Antitrust Law*, 76 GEO. L.J. 241 (1987).

¹¹⁴ The main text has not explained how market power is actually determined. As stated earlier, it is technically defined as having enough power so as to make something happen that would not happen in a competitive market, such as abnormally high prices or the exclusion of competitors. Such power is said to be difficult to demonstrate directly, and so in antitrust practice market power is usually inferred through market share. A company that controls some percentage of the market is presumed to have corresponding market power. If company P has 80% of the snack peanut market, we might infer it has market power, while company Z with 3% does not.

Of course, P’s 80% control of the “snack peanut” may sound impressive, but only if, in fact “snack peanuts” is actually a market. It might be, in fact, that peanuts are in fierce competition with chips and pretzels. Stated differently, if a peanut “monopolist” attempted to raise prices or otherwise manipulate the market, would consumers just turn to, or substitute, other products, like popcorn or chips? If so, perhaps the “correct” market is actually “snack foods,” of which peanuts are just 10%, leaving P with just 8% market share. Far from being a terrifying monopolist, he’s just peanuts. For another general review, see PHILLIP E. AREEDA ET AL., *ANTITRUST ANALYSIS: PROBLEMS, TEXT, AND CASES* (7th ed. 2013).

The process just described is the process of “market definition,” and, as the snack food example should make clear, the definition of markets has a powerful influence on assessments of market power, which is the lynchpin of antitrust analysis. While relevant to most antitrust cases, market definition is particularly important in merger analysis, which is a prediction of how companies will behave after a merger, and therefore one that weighs the final market shares quite heavily.

analysis requires that a plaintiff demonstrate an anticompetitive effect, which usually necessitates a demonstration of market power.¹¹⁵ Similarly, the Supreme Court has held that the offense of monopolization under § 2 of the Sherman Act requires proof of monopoly power, which is taken as something beyond mere market power.¹¹⁶

Of particular importance here is the role of the market and its definition in merger reviews conducted under Section 7 of the Clayton Act. The government is obliged to block or condition a merger if it predicts that allowing the merger will “substantially lessen competition.”¹¹⁷ In current practice, such a finding is usually premised on a prediction that the new entity will wield enough power after the merger so as to permit it to raise prices or restrain competition in a self-serving way. Under the “Merger Guidelines” jointly published by the Federal Trade Commission and Department of Justice, that prediction is premised both on a series of presumptions (i.e., presumptions that the resulting market structure will be anticompetitive, like two companies merging to create a monopoly), along with economic arguments, usually price-focused, specific to the firms and industry in question.¹¹⁸

As it stands, in nearly all antitrust cases these key questions are addressed by focusing on “cash” markets effects on prices. Indeed, as numerous critics have written,¹¹⁹ antitrust has become “price-fixated” or “price-centric.” That is to say, antitrust faces great difficulty addressing forms of competition that do not turn on providing a cheaper product, and also has difficulty addressing harm that amounts to something other than the raising of prices to consumers. Unfortunately, as the economy gets more complex, these are hardly the only forms of competition or harm. 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.

¹¹⁵ See, e.g., *California Dental Ass’n v. FTC*, 526 U.S. 756, 782 (1999) (Breyer, J., concurring) (describing typical rule of reason analysis).

¹¹⁶ See *United States v. Grinnell Corp.*, 384 U.S. 563, 570 (1966); *United States v. Aluminum Co. of Am.*, 148 F.2d 416, 428-29 (2d Cir. 1945) (“[S]ize does not determine guilt... without having intended either to put an end to existing competition, or to prevent competition from arising when none had existed; they may have become monopolist by force of accident.”).

¹¹⁷ See 15 U.S.C § 18 (1988).

¹¹⁸ See *Horizontal Merger Guidelines*, *supra* note 111, at 5.3-5.4.

¹¹⁹ See e.g., MAURICE STUCKE & ALLEN GRUNES, *BIG DATA AND COMPETITION POLICY*, ch. 7 (2016); John M. Newman, *Antitrust in Zero-Price Markets: Foundations*, 164 U. PA. L. REV. 149 (2015); Tim Wu, *Taking Innovation Seriously: Antitrust Enforcement If Innovation Mattered Most*, 78 ANTITRUST L. J. 313, 328 (2012).

e. *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, or in the jargon, “time on site.” Time serves as a proxy for attention, given that one cannot usually determine whether consumers are actually attending to their screens when advertisements are displayed or how focused that attention is at any given moment. This approach recognizes that some firms are at the junction of two markets – attention and cash markets – and appreciates that market power in attention markets can convey considerable power.

Time on site is readily measurable, and already tracked by both industry and observers. For example, a 2016 ComScore report suggests that Facebook had an average of over 1,000 monthly minutes per user, as compared with about 250 for Instagram and Snap, and less than 200 for Twitter and 50 for Google+. ¹²⁰ Relying on this data for hypothetical purposes, if consumers nationwide spent a total of some 2000 minutes per week total on all social media, and overall spent 55% of those hours on Facebook and 12.5% on Instagram, we would have some sense of the structural importance of a Facebook-Instagram combination, which would, in this hypothetical, leave one company with 67.5% market share in the presumed social media market. If those numbers were correct (likely they are not) the merger would be presumptively anti-competitive. ¹²¹

Using time as the metric is not difficult and it helps show some of the limitations of other approaches, such as an exclusive focus on the markets for advertising alone, which has been the tendency of most antitrust observers. As discussed above, the British competition office suffered from this exclusive focus on cash advertising markets. ¹²² That cash-market analysis made Instagram a non-entity; yet at the time of the merger it in fact already had a sizable share of social media attention, but had not yet converted that attention into advertising revenue. ¹²³ 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 media. Also, as we’ve seen above it is typical for an Attention Broker to capture an audience at an earlier stage, and then later

¹²⁰ Comscore, 2016 Cross Platforms Future in Focus. The report does not give exact numbers.

¹²¹ This conclusion is premised on the structural presumptions in 5.3 of the Horizontal Guidelines. *Horizontal Merger Guidelines*, *supra* note 111 (“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.”).

¹²² See *supra* notes 14-23 and accompanying text.

¹²³ See *supra* note 16 and accompanying text.

convert that audience into advertising revenue.¹²⁴ In retrospect, that was exactly the strategy that Instagram pursued. After gaining some 300 million users, it successfully introduced advertising in 2015 and began increasing the load thereafter.¹²⁵

f. Market Definition & 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. But how does one define attentional markets? We simply assumed in the example above that “social media” is a market, but it might reasonably be asked if “social media” 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.”¹²⁶ 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.¹²⁷ Hence, two different brands of peanuts might be in the same market, but are not substitutes for beer.¹²⁸ 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 test it might be helpful to see how others have addressed the question. One approach comes from David Evans in work done for the Google case.¹²⁹ Noting that, over a ten-year period, entire categories of sites became more or less popular (for

¹²⁴ See *supra* notes 93-99 and accompanying text (describing Facebook’s strategy in the 2000s).

¹²⁵ Sapna Maheshwarijan, *More Ads to Appear on Instagram, Now on ‘Stories’ Feature*, N.Y. TIMES (Jan. 11, 2017), <https://www.nytimes.com/2017/01/11/business/instagram-ads.html>.

¹²⁶ 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 111.

¹²⁷ For a basic introduction to substitutes and complements, see, e.g., ARLEEN J. HOAG & JOHN H. HOAG, *INTRODUCTORY ECONOMICS* 65-66 (2006).

¹²⁸ The beer and salty snacks are “complements.” See *id.*

¹²⁹ See David S. Evans, *Attention to Rivalry among Online Platforms and its Implications for Antitrust Analysis* (Coase-Sandor Inst. for L. & Econ., Working Paper No. 627, 2013).

example, social media became more popular, and web portals less), he presumed that users switch between different categories and concluded, therefore, that nearly everything on the web competing for attention is presumptively in the same market.¹³⁰ As he wrote:

[A]ttention seekers compete with each other, at least to some degree, across even broadly defined products and service categories. When one attention seeker gets more attention some other attention seeker is probably getting less.¹³¹

The logic behind this assertion is as follows: if you begin using Facebook and therefore use Google less, Facebook must be successfully competing with Google. But on closer examination this approach is extremely overbroad as a theory of substitution, and it does not tell us much that we need to know about competition in attentional markets.

The main problem with Evan's approach is that it defines 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, 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 to tell us what is happening in the consumer markets, which should presumptively be the most important. As we've seen, the approach also misses competition for attention.¹³² It might be that advertisers see Google and Facebook as offering substitutes — i.e., digital ads that reach a certain demographic. But that doesn't necessary 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.

¹³⁰ *Id.* at 12.

¹³¹ *Id.*

¹³² See *supra* notes 14-23 and accompanying text.

A better alternative, proposed here, is to directly test substitutability in the attentional markets by examining how consumers react to an increase the “attentional price.” In other words, the proposal is to find the attentional equivalent 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.¹³³ The SSNIP test aims to test substitution by determining whether a hypothetical monopolist could profit from a price increase of 5% - 10% 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 tries to determine how consumer might react to a small but significant and non-transitory increase in the advertising load for a given product. It 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 very short, 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, the right market definition, and that a hypothetical search engine monopolist is in a position to raise attentional prices.

The attentional 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.¹³⁴ The point is merely

¹³³ The test is described in more detail in F. M. SCHERER, INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE 517 (1980); see also *Horizontal Merger Guidelines*, *supra* note 111. This builds directly on the approach suggested by Randal Picker. See Randal C. Picker, *Online Advertising, Identity and Privacy* (Univ. of Chi. John M. Ohlin L. & Econ., Working Paper No. 475, 2009).

¹³⁴ 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), <https://qz.com/900349/google-goog-has-been-quietly-placing-more-ads-in-search-results/>.

that a better approach to understanding who counts as “competitors” 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.¹³⁵ 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 process in regular markets.¹³⁶ 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 web sites of 2010 with that of today to see that the advertising load has increased dramatically.¹³⁷ 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.¹³⁸ 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

¹³⁵ See Lapo Filistrucchi et al., *Market definition in two-sided markets: Theory and practice* (TILEC Discussion Paper No. DP 2013-009, 2013).

¹³⁶ AREEDA ET AL., *ANTITRUST ANALYSIS* 5-10 (7th ed. 2013) (describing harms intended to be prevented by antitrust).

¹³⁷ See, e.g., Bhattacharya, *supra* note 134; Adam Levy, *Hate ads on facebook? They're about to get worse*, NEWSWEEK (Feb. 19, 2017), <http://www.newsweek.com/hate-ads-facebook-getting-worse-557630>.

¹³⁸ See Wu, *supra* note 119 at 313.

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.¹³⁹

- 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 rooms 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 to new regulatory challenges.

This section 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 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.¹⁴⁰ 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.”¹⁴¹ 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.¹⁴²

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.¹⁴³ 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

¹³⁹ Charles L. Black, Jr., *He Cannot Choose But Hear: The Plight of the Captive Auditor*, 53 COLUM. L. REV. 960, 962 (1953).

¹⁴⁰ See <http://gstv.com>.

¹⁴¹ See Tom Walsh, *Gas Station TV moves pumps more growth into downtown*, DET. FREE PRESS (April 12, 2015) <http://www.freep.com/story/money/business/columnists/tom-walsh/2015/04/11/gasstation-tv-gilbert/25527645/>.

¹⁴² See *supra* notes 32-39 and accompanying text.

¹⁴³ See *supra* text accompanying notes 50 to 52.

broadcasting various messages at loud volume so as to reach both pedestrians and people within their homes.¹⁴⁴ 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.”¹⁴⁵ 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.”¹⁴⁶

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*.

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.¹⁴⁷

In other words, it really is an unfortunate thing to accept the idea that a seizure of time and mental facilities is a *de minimus* 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,¹⁴⁸ the deprivation of a liberty, more precisely liberty of thought, which is itself a constitutional value. As Justice Cardozo put it, “[O]f that freedom one may say that it is the matrix, the indispensable condition, of nearly every other form of freedom.”¹⁴⁹

¹⁴⁴ See *Kovacs v. Cooper*, 336 U.S. 77 (1949).

¹⁴⁵ *Id.* at 86-87.

¹⁴⁶ Black, *supra* note 139.

¹⁴⁷ Black, *supra* note 139.

¹⁴⁸ See Black, *supra* note 139 at 963.

¹⁴⁹ *Palko v. State of Connecticut*, 302 U.S. 319, 327 (1937).

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 look 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.¹⁵⁰ 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.”¹⁵¹ A typical definition of theft or larceny is the taking of control of property or a resource “under such circumstances as to acquire the major portion of its economic value or benefit.”¹⁵² 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.”¹⁵³ 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.¹⁵⁴ 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

¹⁵⁰ See PRWEB, *Global Out-of-Home Media Revenues Up 6.2% in 2016* (Jan. 10, 2017) <http://www.prweb.com/releases/2016/12/prweb13943072.htm>.

¹⁵¹ See Tim Wu, *The crisis of attention theft – ads that steal your time for nothing in return*, WIRED (April 14, 2017), <https://www.wired.com/2017/04/forcing-ads-captive-audience-attention-theft-crime/>.

¹⁵² N.Y. Penal Law § 155.00.

¹⁵³ Restatement (Second) of Torts § 222A(1) (1965).

¹⁵⁴ See, e.g., *Thyroff v. Nationwide Mut. Ins. Co.*, 8 N.Y.3d 283 (2007); *Kremen v. Cohen*, 337 F.3d 1024, 67 U.S.P.Q.2d 1502 (9th Cir. 2003) (applying California law); *Superior Edge, Inc. v. Monsanto Co.*, 44 F. Supp. 3d 890, 89 Fed. R. Serv. 3d 1388 (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).

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.¹⁵⁵ 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.

The approach explored here also gives 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 man or woman who has chosen to spend the flight speaking loudly on his or her telephone. But as we've seen above, consumer protection regulators, centered on the legal standard of policing "unfair and deceptive practices,"¹⁵⁶ have struggled mightily to give consumers the protections that they obviously want.¹⁵⁷

Let us return to the specific example of what might justify banning telephony 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.¹⁵⁸ 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.¹⁵⁹

¹⁵⁵ See N.Y. Penal Law §§ 120.00, 130.05, 130.10.

¹⁵⁶ 49 U.S.C. 41712 (Department of Transportation); 15 U.S. Code § 45 (Federal Trade Commission).

¹⁵⁷ See *supra* notes 32 to 39 and accompanying text.

¹⁵⁸ The comments are discussed in 81 Fed. Reg. 90258, *supra* note 33.

¹⁵⁹ See 81 Fed. Reg. 90258, *supra* note 33 (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.” In short, there were cognitive impairments inflicted on victims by overheard phone conversations.¹⁶⁰ 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.¹⁶¹ 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, who 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.¹⁶² The agency, however, did not take the issue seriously, and through the 1980s airlines continued to have a smoking section.¹⁶³ Despite evidence of harm to flight attendants,¹⁶⁴ the idea of banning smoking on board was seen as impractical. As regulator Dan McKinnon stated in 1984, “Philosophically, I think nonsmokers have rights, but it comes into market conflict with practicalities and the realities of life”; meanwhile, the airlines stressed that they were “unalterably opposed to any arbitrary and discriminatory ban on smoking.”¹⁶⁵ However,

¹⁶⁰ See Emberson, *supra* note 43.

¹⁶¹ See *supra* Section II.e.

¹⁶² See MARTIN B. HOCKING & DIANA HOCKING, AIR QUALITY IN AIRPLANE CABINS AND SIMILAR ENCLOSED SPACES 311 (4th ed. 2005).

¹⁶³ See *id.*

¹⁶⁴ *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).

¹⁶⁵ See *id.*

by the late 1980s, the weight of scientific evidence of harm finally convinced Congress to ban smoking on board.¹⁶⁶ 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.¹⁶⁷

The approach pioneered here, finally, helps justify laws already in existence that help 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 “unnecessary, excessive and annoying noises from all sources.”¹⁶⁸ The city has enacted complex regulations that, for example, require miniature golf operators to post signs “Requesting patrons to refrain from unnecessary noise.”¹⁶⁹ New York City, surely one of the noisier cities in the world, has a complex set of noise regulations,¹⁷⁰ such as a ban on honking in situations other than in response to actual dangers. New York City's rules also ban some types of car alarms.¹⁷¹ Cities and states regulate highway billboards, and many ban digital billboards – billboards that change shape and sometimes flash in order to gain attention. In particular, along interstates, such billboards were banned under the Highway Beautification Act of 1965.¹⁷²

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

¹⁶⁶ Congress first banned smoking on domestic flights lasting less than two hours. Act of Nov. 21, 1989, Pub. L. 101-164 (1989). 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 (2000); *see also* Prohibition of Smoking on Scheduled Passenger Flights; Final Rules, 65 Fed. Reg. 36771 (June 9, 2000) (implementing § 708).

¹⁶⁷ *See* HOCKING, *supra* note 162.

¹⁶⁸ L.A., CAL., MUN. CODE ch. 11.

¹⁶⁹ *See id.* § 41.44(c).

¹⁷⁰ 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), <http://www.nytimes.com/2013/01/29/nyregion/new-york-removes-no-honking-signs.html>.

¹⁷¹ 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 (Jul. 22, 2004), http://www.nytimes.com/2004/07/22/nyregion/city-council-bans-car-alarm-sales-but-a-mayoral-veto-looms.html?_r=0.

¹⁷² 23 U.S.C. § 131 (1965).

(like the ban on blinking highway bulletins).¹⁷³ But they might be additionally and sometimes better justified as a protection of resources that belong to the public that are being appropriated without consent. 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.

V. Conclusion

It is a truism that law needs to constantly adapt to changing conditions, including technological, social, and economic changes. Over the last half-decade, one of the most important yet most poorly understood changes has been the rise of centrally important firms like Google or Facebook whose business model is premised not on the sale of goods or services, but on the resale of attention. But the rise of such firms is actually just a reflection of 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 paper has discussed the challenges posed by just one of those abstractions. Yet it stands to reason that as our conception of value becomes increasingly abstract, the kind of challenges identified by this paper will only grow in importance.

¹⁷³ See, e.g., Highway Beautification Act, Pub. L. 89-285 § 131(a) (1965) (“[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.”).