

Article

Antitrust, Attention, and the Mental Health Crisis

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INTRODUCTION

The world is enduring a mental health crisis perpetuated by, it appears, the compulsive usage of technology.¹ Starting around 2003, the prevalence of depression and anxiety skyrocketed after years of being static.² Not only did this phenomenon coincide with the internet boom, but psychiatric and neurological studies have purportedly found that the most frequent users of technology incur the greatest decline in mental health.³

Technology's impact on mental health is unsurprising because platforms, devices, and applications ("apps") are designed to maintain a user's attention for as long as possible, intruding on one's cognitive process. For instance, a whistleblower explained that Facebook's algorithm placed a greater weight on posts garnering angry emojis than happy ones, pushing these posts to the top of people's feeds.⁴ The rationale, it seems, was that users engage Facebook more often and for longer periods of time when anger-inducing content appears.⁵ By

1. See generally Elizabeth Hoge, David Bickham & Joanne Cantor, *Digital Media, Anxiety, and Depression in Children*, 140 PEDIATRICS S76 (2017) (detailing the growing concern and prevalence of mental health disorders in children, driven by technology use and overusage).

2. See, e.g., Tori Marsh, *Depression and Anxiety Prescriptions Are Climbing Nationwide*, GOODRX (May 2, 2019), <https://www.goodrx.com/blog/depression-and-anxiety-prescriptions-are-climbing-nationwide> [<https://perma.cc/PV55-2UDY>] (explaining the growth of depression and anxiety as seen in prescription fill rates); Amy Novotney, *Students Under Pressure*, AM. PSYCH. ASS'N: MONITOR ON PSYCH. (2014), <https://www.apa.org/monitor/2014/09/cover-pressure> [<https://perma.cc/U4FK-JKGT>] (discussing the rise of mood disorders as seen in college counseling).

3. See, e.g., Jean M. Twenge, A. Bell Cooper, Thomas E. Joiner, Mary E. Duffy & Sarah G. Binau, *Age, Period, and Cohort Trends in Mood Disorder Indicators and Suicide-Related Outcomes in a Nationally Representative Dataset, 2005–2017*, 128 J. ABNORMAL PSYCH. 185, 195–97 (2019).

4. Jeremy B. Merrill & Will Oremus, *Five Points for Anger, One for a 'Like': How Facebook's Formula Fostered Rage and Misinformation*, WASH. POST (Oct. 26, 2021), <https://www.washingtonpost.com/technology/2021/10/26/facebook-angry-emoji-algorithm> [<https://perma.cc/K3UN-WHHK>].

5. See Mark Zuckerberg, *A Blueprint for Content Governance and Enforcement*, FACEBOOK (May 5, 2021), <https://www.facebook.com/notes/751449002072082> [<https://perma.cc/TWY7-MPHL>] ("[W]hen left unchecked, people will engage

incentivizing misinformation, polarizing views, bullying, and extremist content, the design has allegedly caused users to express elevated levels of anger, depression, and anxiety.⁶

The purpose of doing so is economic: a platform's value is typically derived from the amount of time users spend on it and their depth of interaction.⁷ By creating engagement (clicks, swipes, etc.), a company can track and analyze users, allowing it to target advertisements, uncover insights into human behavior, innovate products, and capture more attention.⁸ Illustrating attention's value, TikTok achieved a \$50 billion valuation without charging a dollar price by attracting 682 million users who spend about 50 minutes on the app per day.⁹ To do so, TikTok bombards users with short bursts of content akin to "digital crack cocaine."¹⁰ As one observer put it, "TikTok use[s]

disproportionately with more sensationalist and provocative content. . . . Our research suggests that no matter where we draw the lines for what is allowed, as a piece of content gets close to that line, people will engage with it more on average—even when they tell us afterwards they don't like the content."); *see also* Adrienne LaFrance, *History Will Not Judge Us Kindly*, ATLANTIC (Oct. 25, 2021), <https://www.theatlantic.com/ideas/archive/2021/10/facebook-papers-democracy-election-zuckerberg/620478> [<https://perma.cc/V32N-2VPN>] (discussing the added activity of users subjected to angry posts).

6. *See, e.g.*, Luke Munn, *Angry by Design: Toxic Communication and Technical Architectures*, HUMANS. & SOC. SCIS. COMM'NS, at *1–5 (July 30, 2020), <https://www.nature.com/articles/s41599-020-00550-7> [<https://perma.cc/9FMB-W92M>]; LaFrance, *supra* note 5 (explaining how the angry emoji incentivizes antisocial behaviors).

7. *See infra* Part I; *see, e.g.*, Kalev Leetaru, *The \$200 Uber Ride and the Realtime Data-Driven Sharing Economy*, FORBES (Jan. 2, 2016), <https://www.forbes.com/sites/kalevleetaru/2016/01/02/the-200-uber-ride-and-the-realtime-data-driven-sharing-economy> [<https://perma.cc/7E72-FTKL>] (describing how Uber uses data and technology to undersell the taxi industry).

8. John M. Newman, *Antitrust in Zero-Price Markets: Foundations*, 164 U. PA. L. REV. 149, 156–57, 165–74 (2015) (explaining the economic value of attention in modern digital markets).

9. John Koetsier, *Digital Crack Cocaine: The Science Behind TikTok's Success*, FORBES (Jan. 18, 2020), <https://www.forbes.com/sites/johnkoetsier/2020/01/18/digital-crack-cocaine-the-science-behind-tiktoks-success> [<https://perma.cc/CZ53-XS7D>]; Echo Wang, Kane Wu & Julie Zhu, *Exclusive: ByteDance Investors Value TikTok at \$50 Billion in Takeover Bid—Sources*, REUTERS (July 29, 2020), <https://www.reuters.com/article/us-bytedance-tiktok-exclusive/exclusive-bytedance-investors-value-tiktok-at-50-billion-in-takeover-bid-sources-idUSKCN24U1M9> [<https://perma.cc/MK72-2WVG>].

10. Koetsier, *supra* note 9; Eliza Aguilar, *Why TikTok Is So Addicting?*, MEDIUM (May 11, 2020), <https://medium.com/@elizaaguilar/why-tiktok-is-so-addicting-5e41ed975c1d> [<https://perma.cc/6WEE-XPRX>] ("Content is increasing in volume, which exhausts our attention and our urge for 'newness' causes us to collectively switch between topics more regularly.' In other words, the more content we're faced

the same neural pathways in your brain as alcohol, nicotine, and cannabis [It] is focused on creating that habit of endless swiping.”¹¹ Rather than a *de minimis* part of the economy, the market for attention has eclipsed \$5.9 trillion, about one-third of America’s GDP.¹²

In fact, critics insist that inadequate competition in the tech sector has incentivized companies to exacerbate the mental health crisis.¹³ Illustrating the tech market’s concentration, one or two firms dominate search results, social media, video sharing, cloud services, online ad spending, ebooks, mobile and desktop operating systems, among others.¹⁴ Without viable alternatives, it is alleged that tech firms can, and do, manipulate users without fear of a market response.¹⁵ Tech monopolies are also resilient given the combination of their sheer sizes, cheap or “free” prices, and data advantages; after all, an upstart cannot hardly undersell Facebook or offer a comparably sized network.¹⁶ If this was not enough, Congress, federal agencies, and scholars have asserted that tech giants engage in anticompetitive practices meant to impede entrants into their markets.¹⁷

with, the less our attention span is and the greater our urge is to look at new content.” (quoting Philipp Lorenz-Spreen)).

11. Parthshri Arora, *TikTok Ban: How Suddenly Being Cut Off of Social Media Apps Affects Mental Health*, RE:SET YOUR EVERYDAY (Jul. 3, 2020), <https://resetyoureveryday.com/tiktok-ban-how-suddenly-being-cut-off-of-social-media-apps-affects-mental-health> [<https://perma.cc/92PB-USHB>]; see also Jane Kelly, *The Great Disrupter: How Tiktok Is Changing Business Practices and Making New Stars*, UVA-TODAY (Nov. 4, 2020), <https://news.virginia.edu/content/great-disrupter-how-tiktok-changing-business-practices-and-making-new-stars> [<https://perma.cc/8B64-3E75>].

12. John M. Newman, *Regulating Attention Markets* (Nov. 2, 2020) (unpublished manuscript) (on file with author; abstract available at <https://ssrn.com/abstract=3423487>) (citing David S. Evans, *Attention Platforms, the Value of Content, and Public Policy*, 54 REV. IND. ORG. 775, 781 (2019)).

13. See Gregory Day & Abbey Stemler, *Are Dark Patterns Anticompetitive?*, 72 ALA. L. REV. 1, 19–22 (2020).

14. See *id.* at 4 (listing the market power of certain tech giants); Makan Delrahim, Assistant Att’y Gen., Antitrust Div., U.S. Dep’t of Justice, “...And Justice for All”: Antitrust Enforcement and Digital Gatekeepers (June 11, 2019) [hereinafter *Justice*], <https://www.justice.gov/opa/speech/assistant-attorney-general-makan-delrahim-delivers-remarks-antitrust-new-frontiers> [<https://perma.cc/PJR7-B47L>] (discussing concentration in markets such as operating systems and ebooks).

15. See, e.g., Lina M. Khan, Note, *Amazon’s Antitrust Paradox*, 126 YALE L.J. 710, 746–83 (2017) (asserting that Big Tech companies like Amazon face insufficient competitive pressures).

16. See generally SCOTT GALLOWAY, *THE FOUR: THE HIDDEN DNA OF AMAZON, APPLE, FACEBOOK, AND GOOGLE 5* (2017).

17. See *infra* Parts III.B, III.C.3.

If tech giants dominate their markets, exclude competition, and harm consumers, should this create an antitrust offense? The answer has so far been “no” because antitrust’s consumer welfare standard has seemingly diverged from its economic meaning and, in the process, dismisses types of costs and benefits experienced by people.¹⁸ It remedies injuries like high prices, restricted output, reduced innovation, and diminished quality, yet today’s dominant firms offer innovative services for cheap or zero prices.¹⁹ Although antitrust law is able to promote the quality of products on the market, this has irregularly occurred without evidence of high prices.²⁰ And in the few instances where plaintiffs claimed that anticompetitive conduct caused emotional harm, courts have countered that antitrust law—given its restricted legal scope—cannot intervene.²¹ Thus, even when tech giants develop methods of frustrating competition, antitrust requires a legally-recognized injury that is seemingly missing.²² If firms are

18. Barak Y. Orbach, *The Antitrust Consumer Welfare Paradox*, 7 J. COMPETITION L. & ECON. 133, 133–34 (2011) (“All antitrust lawyers and economists know that the stated instrumental goal of antitrust laws is ‘consumer welfare,’ which is a defined term in economics. . . . [But] thoughtless judicial borrowing led to the rise of a label that . . . has no clear meaning. . . . [U]nder all present interpretations of the term . . . the application of antitrust laws may hurt consumers and reduce total social welfare. . . . [T]he present antitrust methodology cannot accommodate welfare analysis and therefore the use of the term ‘welfare’ is misleading.”).

19. Newman, *supra* note 8, at 160 (finding “multiple examples of courts creating de jure antitrust immunity by declining to apply antitrust scrutiny in zero-price contexts. These courts have done so on the grounds that the antitrust laws cannot apply in the absence of prices.”).

20. See Day & Stemler, *supra* note 14, at 27 (“Courts have nevertheless struggled to find an antitrust offense without higher prices; this is due to the difficulties of proving a causal relationship between exclusionary conduct and eroded quality, whereas plaintiffs can more easily link high prices to competition.”).

21. *Boisjoly v. Morton Thiokol, Inc.*, 706 F. Supp. 795, 804–05 (D. Utah 1988) (“[E]motional injury . . . is unrelated to price competition or economic freedom among competitors. It is clearly not the type of anticompetitive injury that the antitrust laws were meant to protect against.”); see also *Christou v. Beatport, LLC*, 849 F. Supp. 2d 1055, 1069 (D. Colo. 2012) (citation omitted) (“Mr. Christou cannot demonstrate sufficient causation to satisfy the Clayton Act by damage to his reputation: ‘injury to his reputation, dignity and emotional damages are not the type of injuries redressable by the antitrust laws . . .’”) (citation omitted); Maurice E. Stucke, *Should Competition Policy Promote Happiness?*, 81 FORDHAM L. REV. 2575, 2581–82 (2013) (asserting that antitrust policy should logically promote happiness even though the current enterprise measures “welfare” also exclusively through output and prices).

22. See, e.g., Simone Stolzoff, *The Formula for Phone Addiction Might Double as a Cure*, WIRED (Feb. 2, 2018), <https://www.wired.com/story/phone-addiction-formula> [<https://perma.cc/2PVN-N74G>]; Simon Parkin, *Has Dopamine Got Us Hooked on Tech?*, GUARDIAN (Mar. 4, 2018), <https://www.theguardian.com/technology/>

offering unlimited quantities of high quality and innovative content for free, would this not suggest that consumer welfare is flourishing?

Notably, the issues raised by Big Tech might spark an antitrust revolution. Demonstrating the ways in which digital markets have forced courts and enforcers to rethink antitrust, it was only in June of 2019 when the Department of Justice (DOJ) first publicly recognized attention as a type of market.²³ This development is often associated with the DOJ's antitrust chief, Makan Delrahim, who insisted in 2019 that digital markets are mired with monopolies,²⁴ create novel issues for antitrust authorities,²⁵ and harm consumers in new ways.²⁶ When Delrahim's tenure ended in 2021, he not only asserted that digital markets present the greatest issue to his successors,²⁷ but also helped to inspire the government's efforts to break up Google in late 2020.²⁸ Observers questioned, though, how the agencies can expect to win so long as tech giants provide innovative services at zero prices; given

2018/mar/04/has-dopamine-got-us-hooked-on-tech-facebook-apps-addiction [https://perma.cc/SKH5-RBCT].

23. *Justice, supra* note 14 (“Broadly speaking, in some digital markets, the competition is for user attention or clicks.”).

24. Makan Delrahim, Assistant Att’y Gen., Antitrust Div., U.S. Dep’t of Just., “Blind[ing] Me With Science”: Antitrust, Data, and Digital Markets (Nov. 8, 2019) [hereinafter *Blinding Me*], <https://www.justice.gov/opa/speech/assistant-attorney-general-makan-delrahim-delivers-remarks-harvard-law-school-competition> [https://perma.cc/A285-686D] (“[W]e cannot afford to be overly formalistic in assessing the potential harms that may be attendant to these kinds of business practices. Today, the extraction of monopoly rents may look quite different than it did in the early 20th century.”).

25. *Justice, supra* note 14 (“[T]he acquisition of data as opposed to dollars may create new analytical challenges. . . . [I]n the absence of price competition, market definition can be difficult. The traditional analytical test applied by enforcers to define relevant markets . . . does not translate directly to a zero-price market. We cannot look at the effects of a five percent increase in price because five percent of zero is still zero.”).

26. *Blinding Me, supra* note 24 (“Today’s business methods and practices regarding data appear to be a departure from the kind of scale of old. Thus, it is not particularly compelling to compare today’s data-intensive business practices to a brick-and-mortar store’s loyalty program. These changes raise questions about whether there is more potential for abuse of market power than in the past. Scholars have argued that quantity of data collected and the great strides made in data science can now be used to create a real-time ‘feedback loop’ that was previously unattainable.”).

27. Makan Delrahim, Assistant Att’y Gen., Antitrust Div., U.S. Dep’t of Just., “A Whole New World”: An Antitrust Entreaty for a Digital Age (Jan. 19, 2021), <https://www.justice.gov/opa/speech/assistant-attorney-general-makan-delrahim-delivers-final-address> [https://perma.cc/85Q3-P2U9] (“The single greatest issues facing my successors, the new Congress, and the public relate to concerns of market integrity and market power in the increasingly concentrated digital marketplace.”).

28. Complaint, *United States v. Google*, 1:20-cv-03010 (D.D.C. Oct. 20, 2020).

Big Tech's ability to evade antitrust liability, a criticism is that the government's lawsuits are primarily intended to satisfy populist demands.²⁹

This Article argues that antitrust law misses the economics of mental health.³⁰ Whereas an antitrust offense has conventionally involved supracompetitive prices (i.e., a price set higher than would exist under competition),³¹ digital markets are analogous in that tech firms can charge supracompetitive attention, resulting in heightened levels of anxiety, depression, and similar disorders than would exist in a competitive market.³² Instead of a social harm, as antitrust courts and scholars have insisted,³³ the decline of mental health is economic in nature.³⁴ Anxiety and mood disorders cause people to miss work, lose productivity, become unemployed, and incur the costs of treatment, draining roughly \$1 trillion from the U.S. economy per year.³⁵ In fact, research has found that depression and anxiety reflect the most significant types of healthcare costs facing modern businesses.³⁶ If a tech giant inflicts high costs on users while extracting above market revenue, the decline of mental health reflects attention's *actual price* paid by consumers—especially given the waning role of dollar prices.

29. See *infra* notes 221–28.

30. See Ian Bogost, *The Tech Companies Already Won*, ATLANTIC (July 30, 2020), <https://www.theatlantic.com/technology/archive/2020/07/antitrust-hearing-tech-pandemic-inescapable/614749> [<https://perma.cc/55HW-ZYBR>] (“Antitrust is supposed to do the same thing, except for business: encourage competition by breaking up or regulating companies that grow too large—a demand Representative Cicilline issued. But just as the pandemic’s public-health disruption feels endless and out of control, the technology sector’s disruptive innovation seems too entrenched to upend easily. In both cases, nothing appears to change, only to persist, even as spectacles like this one demand intervention.”).

31. CAE Inc. v. Gulfstream Aerospace Corp., No. 15-924-LPS, 2017 WL 3279122, at *6 (D. Del. July 28, 2017) (describing supracompetitive pricing).

32. See *infra* Part IV.

33. For example, a nightclub owner asserted that the defendants injured his reputation and prevented him from signing “A-list DJs” in order to monopolize the market. The court rejected his claims of personal injuries because “reputation, dignity and emotional damages are not the type of injuries redressable by the antitrust laws” or notably, “consumer welfare.” *Christou v. Beatport*, 849 F. Supp. 2d 1055, 1070 (D. Colo. 2012).

34. See *infra* Part II.C.

35. Allison Brunier, *Investing in Treatment for Depression and Anxiety Lead to Fourfold Return*, WORLD HEALTH ORG. (Apr. 13, 2016), <https://www.who.int/news/item/13-04-2016-investing-in-treatment-for-depression-and-anxiety-leads-to-fourfold-return> [<https://perma.cc/MJ7V-TJHP>]; see also *infra* Part II.C (explaining the costs of treated and untreated mental health problems).

36. See *infra* Part II.B–C.

This qualifies as market failure because tech giants can, based on exclusionary conduct, internalize attention's value while externalizing the costs of mental health onto society.³⁷

A reason why the economic costs of mental health have largely gone unnoticed is "the trillion-dollar taboo."³⁸ Although depression eliminates about 400 million workdays per year and affects about 18.5% of the population,³⁹ it is largely considered a social problem. Shrouding this issue even further, many employees and workplaces avoid treating mental health disorders due to the stigmas attached to depression and anxiety.⁴⁰ Illustrating this blind spot, Congress ignored the mental health crisis when it held a hearing in 2020 with leaders of Big Tech⁴¹ as well as when the DOJ and FTC sued Google in late 2020⁴² and Facebook in early 2021,⁴³ respectively.

An important element of this argument is that competition would force tech firms to vie over non-price dimensions such as mental wellness. This is especially true in zero-price markets where firms can seldom distinguish their products by merely dropping prices. Even though not all users value mental health, a competitive market would better provide for those who do demand safer services by injecting a greater array of products into the stream of commerce. In fact, rivals

37. *Aerotec Int'l, Inc. v. Honeywell Int'l, Inc.*, 4 F. Supp. 3d 1123, 1137 (D. Ariz. 2014), *aff'd*, 836 F.3d 1171 (9th Cir. 2016) ("The purpose of antitrust law is not to protect market participants from the market; it is to protect the public from market failure.").

38. Lilah Raptopoulus & James Fontanella-Khan, *The Trillion-Dollar Taboo: Why It's Time to Stop Ignoring Mental Health at Work*, FIN. TIMES (July 10, 2019), <https://www.ft.com/content/1e8293f4-a1db-11e9-974c-ad1c6ab5efd1> [<https://perma.cc/SKE5-NL5N>]. See generally The Editors of Scientific American, *The Neglect of Mental Illness Exacts a Huge Toll, Human and Economic*, SCI. AM. (Mar. 1, 2012), <https://www.scientificamerican.com/article/a-neglect-of-mental-illness> [<https://perma.cc/3U6Q-Z8X7>].

39. Carley Sime, *The Cost of Ignoring Mental Health in the Workplace*, FORBES (Apr. 17, 2019), <https://forbes.com/sites/carleysime/2019/04/17/the-cost-of-ignoring-mental-health-in-the-workplace> [<https://perma.cc/8H4K-D6TY>].

40. Debra Lerner, Mercedes Lyson, Eileen Sandberg & William H. Rogers, *The High Cost of Mental Disorders: Facts for Business Leaders*, ONE MIND AT WORK, TUFTS MED. CTR. 5, https://e47.77e.myftpupload.com/wp-content/uploads/2020/09/OMaW_Tufts-Study_High-Cost-of-Mental-Disorders-1.pdf [<https://perma.cc/95US-8MZH>].

41. See generally Shannon Bond, *Congress Holds Big Tech Antitrust Hearing*, NPR (July 29, 2020), <https://npr.org/2020/07/29/896840093/congress-holds-big-tech-antitrust-hearing> [<https://perma.cc/QUL8-BLSC>].

42. Complaint, *United States v. Google Inc.*, No. 1:20-cv-03010 (Oct. 20, 2020).

43. Complaint, *Fed'l Trade Comm'n v. Facebook, Inc.*, 1:20-cv-03590-JEB (D.D.C. Jan. 13, 2021).

in a competitive market must educate users about the virtues and drawbacks of each other's products, which would build awareness about manipulation and drive demand for safer services. And naturally, competition would allow users to punish overly manipulative firms.⁴⁴ Evidence of this dynamic can be found, as detailed later, in emerging rivalries between Facebook and Google, Snapchat and Facebook, Apple and Google, as well as others.⁴⁵ In each instance, the nature of competition forced firms to prioritize their users' mental health, thereby reducing the revenue derived from attention to competitive levels.⁴⁶

This Article proceeds in four parts. Part I discusses the rise of digital markets, explaining the manner in which competition over attention has supplanted price competition. Part II explains how tech addiction generates short and long-term effects involving depression, anxiety, and mood disorders, as well as the economic costs thereof. Part III reviews antitrust law to explain the consumer welfare standard employed by contemporary antitrust. This framework remedies economic injuries suffered by consumers, seldom finding an offense without supracompetitive prices or restricted output. Part IV argues that the heightened economic costs of anxiety, depression, and similar disorders equate to supracompetitive prices. When a firm uses exclusionary conduct to extract a greater level of attention than would exist under competitive conditions while rendering elevated mental health costs on users, this should entail a classic type of market failure and thus antitrust injury.

I. ATTENTION, SURVEILLANCE CAPITALISM, AND MANIPULATION

Attention is a lucrative commodity that increases in value with engagement. While in recent times tech firms have mastered the monitoring and analysis of users, "surveillance capitalism"⁴⁷ is far from a modern phenomenon. This Part compares historical and modern methods of extracting value from attention bolstered by surveillance. It explains the ways in which tech companies have increased the sophistication and, perhaps, manipulateness of commodifying society's attention.

44. *See infra* Part IV.A.1.

45. *See infra* notes 266–78.

46. *See id.*

47. *See generally* SHOSHANA ZUBOFF, *THE AGE OF SURVEILLANCE CAPITALISM: THE FIGHT FOR A HUMAN FUTURE AT THE NEW FRONTIER OF POWER* (2019) (explaining surveillance capitalism).

A. THE ECONOMICS OF ATTENTION FROM A HISTORICAL PERSPECTIVE

The value of attention stems from conventional notions of scarcity. Per economic theory, a good's price tends to increase as it becomes harder to obtain.⁴⁸ Attention is similarly scarce: not only is a person's attention limited by the number of hours in a day but the act of focusing on a movie or book also prevents the person from paying attention to other things.⁴⁹ For instance, since advertising derives value from whether people have seen it, television networks have traditionally provided programming at zero dollars to generate revenue from marketing.⁵⁰ While magazines are sold at positive prices, the presence of advertising enables people to pay with a mix of money and attention.⁵¹ The effect is that the finite, rivalrous, and scarce nature of attention has made it conventionally valuable.⁵²

In important part, surveillance enhances attention's value: a greater level of engagement allows firms to develop nuanced insights, design goods, target consumers, and increase attention.⁵³ While lawmakers and observers criticize Big Tech's voyeurism—describing it as invasive⁵⁴ and manipulative⁵⁵—firms have *always* surveilled consumers. Early evidence may perhaps include the Ishango Bone found in Uganda, which is theorized to reflect ways in which traders tracked commerce in 18,000 BCE.⁵⁶ In the twentieth century, surveillance

48. See Mark A. Lemley, *IP in a World Without Scarcity*, 90 N.Y.U. L. REV. 460, 461 (2015) (describing the importance of scarcity to conventional economic theory).

49. Newman, *supra* note 12, at 8 (“Human attention is scarce. It is, of course, limited by the amount of waking hours in a day.”).

50. *Id.* at 12 (“The most frequently occurring examples occur within advertising-supported zero-price markets like broadcast radio and television, online social networks, and Internet search.”).

51. See John N. Newman, *Antitrust in Attention Markets: Definition, Power, Harm*, at *17, *23–25 (Jan. 25, 2021) (unpublished manuscript) (on file with author) (analyzing the nature of the barter for money and attention).

52. See Jake Linford, *Copyright and Attention Scarcity*, 42 CARDOZO L. REV. 143, 162 (2020) (“Psychologists recognize that attention is a finite resource, one that we constantly spend but cannot stockpile.”).

53. See Day & Stemler, *supra* note 14, at 10 (“The key to attracting and maintaining attention is the self-sustaining ‘Attention Cycle,’ designed to increase the amount of time spent on the platform. Attention Cycles start with the captivation of attention.”).

54. See Gregory Day & Abbey Stemler, *Infracompetitive Privacy*, 105 IOWA L. REV. 61, 78–85 (2019) (describing the privacy costs derived from the tracking of tech users).

55. See Day & Stemler, *supra* note 14, at 3 (describing efforts of tech platforms as manipulative).

56. Bernard Marr, *A Brief History of Big Data Everyone Should Read*, WORLD ECON.

grew increasingly intricate with the rise of professional marketing.⁵⁷ Examples included Nielsen panels and focus groups in which marketers analyzed consumers within the scope of a voluntary dialogue.⁵⁸ A similar strategy is the mall raffle whereby people provided details of their shopping habits in exchange for the chance to win a free car.⁵⁹ Marketers even rooted through people's trash to explore shopping behaviors—a practice known as “garbology.”⁶⁰

As the twenty-first century approached, surveillance became even more covert as firms demanded greater sums of aggregable data.⁶¹ Since people tend to alter their behaviors when directly observed, marketers designed, for instance, the coupon to compare, test, and track spending habits.⁶² They also sought to purchase data from traveling salesmen.⁶³ Although loyalty programs have existed since the 1700s, airlines found in the early 1980s that data flowing from frequent flyer programs offered a remarkably clear picture of consumer behaviors.⁶⁴ Grocery stores, rental car companies, and others followed

FORUM (Feb. 25, 2015), <https://www.weforum.org/agenda/2015/02/a-brief-history-of-big-data-everyone-should-read> [<https://perma.cc/MQM5-9GPW>].

57. *Id.*

58. See, e.g., Pedro A. Alviola IV & Oral Capps, Jr., *Household Demand Analysis of Organic and Conventional Fluid Milk in the United States Based on the 2004 Nielson Homescan Panel*, 26 AGRIBUS. 369 (2010) (using Nielsen analyses to study consumer behavior).

59. Zachary Crockett, *Why Nobody Ever Wins the Car at the Mall*, HUSTLE (June 23, 2018), <https://www.thehustle.co/why-nobody-ever-wins-the-mall-car-giveaway> [<https://perma.cc/HMF9-VAQM>] (noting that one's “personal information gets sucked into an endless marketing vortex”).

60. Frederick Kwame Mensah, *Garbology Market Research: Is It Effective?*, GLOB. PERSP. (Jan. 16, 2014), <https://www.fkmensah.wordpress.com/2014/01/16/garbology-market-research-a-trash-marketing-concept> [<https://perma.cc/BNA4-5J3H>] (describing the technique of garbology).

61. See, e.g., William D. Wells & Leonard A. Lo Sciuto, *Direct Observation of Purchasing Behavior*, 3 J. MKTG. RSCH. 227 (1966) (representing an early effort whereby consumers were directly observed); see also Barbara E. Kahn, Manohar U. Kalwani & Donald G. Morrison, *Measuring Variety-Seeking and Reinforcement Behaviors Using Panel Data*, 23 J. MKTG. RSCH. 89 (1986) (investigating the aggregate behavior of consumers to determine patterns).

62. See, e.g., Andrés Musalem, Eric T. Bradlow & Jagmohan S. Raju, *Who's Got the Coupon? Estimating Consumer Preferences and Coupon Usage from Aggregate Information*, 45 J. MKTG. RSCH. 715 (2008) (deriving insights from the aggregation of coupon spending habits).

63. James H. Madison, *The Evolution of Commercial Credit Reporting Agencies in Nineteenth Century America*, 48 BUS. HIS. REV. 164, 166 (1974).

64. See Tim Winship, *Airline Frequent Flyer Miles, 30 Years Later*, ABC NEWS (May 16, 2011), <https://abcnews.go.com/Travel/airline-frequent-flyer-miles-30-years/story?id=13616082> [<https://perma.cc/4YWG-LT8G>] (“American Airlines

suit in creating their own loyalty systems.⁶⁵ Fueling the commodification of data even further, credit card companies and credit rating agencies began to sell data derived from the spending and borrowing habits of unwitting consumers.⁶⁶ But these strategies pale in comparison to modern surveillance.

B. MODERN ATTENTION, SURVEILLANCE, AND MANIPULATION IN DIGITAL MARKETS

A tech company can derive most of its value from the number of users subscribed to its platform and the amount of time spent on it.⁶⁷ And like in pre-digital eras, attention's value increases with engagement. By innovating methods of tracking users through phones, podcasts, kindles, fitness trackers, smart refrigerators, and other devices, firms can employ artificial intelligence to derive intricate insights into society's habits.⁶⁸ While rudimentary facets of Big Tech's model are

launched AAdvantage, the first airline mileage program, in May 1981, during the scramble for competitive advantage following the industry's deregulation.”); *see also* Eric Rosen, *40 Years of Miles: The History of Frequent Flyer Programs*, THEPOINTS GUY (May 20, 2021), <https://thepointsguy.com/guide/evolution-frequent-flyer-programs> [<https://perma.cc/Q74V-D3C3>] (describing early frequent flyer programs). *See generally* Yuping Liu, *The Long-Term Impact of Loyalty Programs on Consumer Purchase Behavior and Loyalty*, 71 J. MKTG. 19 (2007) (discussing the effectiveness of loyalty programs in an analysis of consumer behavior).

65. Kate Atty, *The Next Phase for Grocery Store Loyalty Programs*, CLUTCH (Oct. 5, 2018), <https://clutch.com/blog/the-next-phase-for-grocery-store-loyalty-programs> [<https://perma.cc/U2FA-PAKN>].

66. *See* Paul E. Rossi, Robert E. McCullough & Greg M. Allenby, *The Value of Purchase History Data in Target Marketing*, 15 MKTG. SCI. 321 (1996); Ken Sweet, *Equifax Collects Your Data, and Then Sells It*, INC. (Oct. 6, 2017), <https://www.inc.com/associated-press/equifax-data-money.html> [<https://perma.cc/JX8Q-9Q33>]. *See generally* JOSH LAUER, *CREDITWORTHY: A HISTORY OF CONSUMER SURVEILLANCE AND FINANCIAL IDENTITY IN AMERICA* (2017).

67. Tim Hwang, *The Future of Morality, at Every Internet User's Fingertips*, ATLANTIC (Aug. 6, 2015), <https://www.theatlantic.com/technology/archive/2015/08/the-future-of-morality-at-every-internet-users-fingertips/400520> [<https://perma.cc/BS66-SGL7>] (discussing the economics of platform technology).

68. *See, e.g.*, Adrienne Jeffries, *Is Your Favorite Podcast Tracking You?*, MARKUP (Oct. 8, 2020), <https://themarkup.org/ask-the-markup/2020/10/08/podcast-privacy-tracking-listener-data> [<https://perma.cc/K9QM-D3T9>] (discussing the rise of tracking users through podcasts); Kari Paul, *They Know Us Better Than We Know Ourselves: How Amazon Tracked My Last Two Years of Reading*, GUARDIAN (U.K.) (Feb. 3, 2020), <https://www.theguardian.com/technology/2020/feb/03/amazon-kindle-data-reading-tracking-privacy> [<https://perma.cc/38PJ-VBGG>] (“And Amazon knows more than just what books I’ve read and when—it also knows which parts of them I liked the most. On 21 May 2019 I highlighted an excerpt from the third installment of the diary of Anaïs Nin, the data shows, and on 23 August 2018 at 11.25 pm, I

well known—e.g., the provision of “free” content meant to attract volumes of users and observable data—tech companies have allegedly developed coercive methods of maintaining attention based on surveillance, experimentation, and analysis.⁶⁹

A reported strategy of generating engagement involves manipulating parts of the brain, though the issue remains a source of considerable contention.⁷⁰ With the help of neurologists and psychiatrists, firms are said to exploit how affirmation triggers dopamine.⁷¹ When one seeks online rewards, such as “loot boxes” in video games, the brain receives dopamine which is theorized to build addiction.⁷² The key to maximizing dopamine is a mix of frequency, randomness, and anticipation known as a “variable reward schedule”⁷³—no method has been more successful than the “like button,” which offers immediate bursts of affirmation, as well as mountains of data about what people do in fact like.⁷⁴ As a designer asserted, “it changes the wiring of the brain.”⁷⁵ Evidence of this tactic’s effectiveness includes the increasing

highlighted an excerpt from Leslie Jamison’s *The Recovering: Intoxication and its Aftermath*. On 27 August 2018, I changed the color of a highlighted portion of that same book.”).

69. See, e.g., Arielle Pardes, *How Facebook and Other Sites Manipulate Your Privacy Choices*, WIRED (Aug. 12, 2020), <https://www.wired.com/story/facebook-social-media-privacy-dark-patterns> [<https://perma.cc/46AH-PAMS>].

70. See Jon Schweppe, *Big Tech Is Using Psychology to Glue Us to Our Screens*, N.Y. POST (Aug. 13, 2019), <https://nypost.com/2019/08/13/big-tech-is-using-psychology-to-glue-us-to-our-screens> [<https://perma.cc/8TU5-2F59>] (“According to my iPhone, I pick up my phone 177 times a day and spend 26 hours a week on social media. These aren’t hours allotted to a hobby I view as a priority. Rather, these are hours lost to what I can only describe as an addiction.”).

71. Sergey Tereshchenko & Edward Kasparov, *Neurobiological Risk Factors for the Development of Internet Addiction in Adolescents*, 9 BEHAV. SCI. 1 (2019).

72. Alex Wiltshire, *Behind the Addictive Psychology and Seductive Art of Loot Boxes*, PC GAMER (Sept. 28, 2017), <https://www.pcgamer.com/behind-the-addictive-psychology-and-seductive-art-of-loot-boxes> [<https://perma.cc/HR34-XQUQ>].

73. Kent C. Berridge, *The Debate Over Dopamine’s Role in Reward: The Case for Incentive Salience*, 191 PSYCHOPHARMACOLOGY 391 (2007).

74. Paul Lewis, *‘Our Minds Can Be Hijacked’: The Tech Insiders Who Fear a Smartphone Dystopia*, GUARDIAN (Oct. 6, 2017), <https://www.theguardian.com/technology/2017/oct/05/smartphone-addiction-silicon-valley-dystopia> [<https://perma.cc/6BZ4-7YVY>] (“He was particularly aware of the allure of Facebook ‘likes’, which he describes as ‘bright dings of pseudo-pleasure’ that can be as hollow as they are seductive. And Rosenstein should know: he was the Facebook engineer who created the ‘like’ button in the first place.”).

75. Jonathan Shieber, *Dopamine Labs Slings Tools to Boost and Reduce App Addiction*, TECH CRUNCH (Feb. 13, 2017), <https://techcrunch.com/2017/02/13/dopamine-labs-slings-tools-to-boost-and-reduce-app-addiction> [<https://perma.cc/FW57-TLEH>].

amount of time spent on smartphones over the past few years: in 2008, Americans used their phones for 90 minutes per day but this number doubled to over 3 hours daily by 2018.⁷⁶

Another aspect of this model involves covert experimentation. A firm can design technology to offer multiple versions of an interface—known as A/B testing—to detect the most effective means of capturing attention.⁷⁷ According to Jeff Bezos, “our success at Amazon is a function of how many experiments we do per year, per month, per day.”⁷⁸ Mark Zuckerberg of Facebook estimated similarly that it runs “tens of thousands of experiments at any given time.”⁷⁹ A/B testing has not only helped Netflix perfect the presentation of preexisting content like *Friends*—which netted Netflix 32.6 billion minutes of attention in 2018⁸⁰—it also informs the creation of the company’s in-house content.⁸¹ The revenue of Netflix’s A/B program exceeds \$500 million per year despite its \$150 million budget.⁸²

76. James Niels Rosenquist, Fiona M. Scott Morton & Samuel N. Weinstein, *Addictive Technology and Its Implications for Antitrust Enforcement*, 100 N.C. L. REV. 431, 439 (2022) (“American teens went from spending essentially no time on mobile devices and the internet in 1996 to well over six hours daily as of 2016.”).

77. Ron Kohavi & Stefan Thomke, *The Surprising Power of Online Experiments*, HARV. BUS. REV. (2017) (“In 2012 a Microsoft employee working on Bing had an idea about changing the way the search engine displayed ad headlines . . . [I]t languished for more than six months, until an engineer, who saw that the cost of writing the code for it would be small, launched a simple online controlled experiment—an A/B test—to assess its impact. Within hours the new headline variation was producing abnormally high revenue, triggering a ‘too good to be true’ alert. Usually, such alerts signal a bug, but not in this case. An analysis showed that the change had increased revenue by an astonishing 12%—which on an annual basis would come to more than \$100 million in the United States alone—without hurting key user-experience metrics. It was the best revenue-generating idea in Bing’s history, but until the test its value was underappreciated.”).

78. Ben Clarke, *Why These Tech Companies Keep Running Thousands of Failed Experiments*, FAST CO. (Sept. 21, 2016), <https://www.fastcompany.com/3063846/why-these-tech-companies-keep-running-thousands-of-failed> [<https://perma.cc/DF6J-MAQX>].

79. *Id.*

80. Jason Lynch, *The Office, Friends and Grey’s Anatomy Were Netflix’s Most Streamed Shows Last Year*, ADWEEK (May 7, 2019), <https://www.adweek.com/convergent-tv/the-office-friends-and-greys-anatomy-were-netflixs-most-streamed-shows-last-year> [<https://perma.cc/A9YW-HBG9>].

81. Enrique Dans, *How Analytics Has Given Netflix the Edge over Hollywood*, FORBES (May 27, 2018), <https://www.forbes.com/sites/enriquedans/2018/05/27/how-analytics-has-given-netflix-the-edge-over-hollywood> [<https://perma.cc/563T-U24J>].

82. Clarke, *supra* note 77 (“Netflix created a whole division of 300 people to help users discover content. In a 2014 interview, chief product officer Neil Hunt claimed that this \$150-million annual investment was yielding \$500 million in

Perhaps the most effective and intrusive means of surveillance is Bluetooth technology. Bluetooth interacts with “beacons,” which allow third parties operating a listening program to connect with a user’s device every two seconds.⁸³ Without putting users on notice—one’s lack of awareness is sometimes called “non-participatory”⁸⁴—a store can track a person’s route, determine time spent in specific spots, and learn that “you had lingered for two minutes in front of the low-fat Chobanis.”⁸⁵ This technology has helped, for example, Jack in the Box identify and target likely patrons with ads on their mobile devices when physically nearby a restaurant.⁸⁶ The accuracy of this data has notably led firms to spend \$16 billion on location-based ads in 2017,⁸⁷ including Google which created “Project Beacon” and Facebook which gives away free beacon devices.⁸⁸ When Facebook “freaked out” that news of its program might cause a revolt, the company scrubbed its website of all information about beacons.⁸⁹

value for Netflix. And in a recent Netflix blog post (winkingly titled, ‘It’s All A/Bout Testing: The Netflix Experimentation Platform’), the company even offered an inside, technical look at an experimentation platform it built and explained what the company is looking to do with it next.”).

83. Jennifer Valentino-DeVries, Natasha Singer, Michael H. Keller & Aaron Krolik, *Your Apps Know Where You Were Last Night, and They’re Not Keeping It Secret*, N.Y. TIMES (Dec. 10, 2018), <https://www.nytimes.com/interactive/2018/12/10/business/location-data-privacy-apps.html> [<https://perma.cc/L2V2-KNWF>]; Gabriel Nicholas & Aaron Shapiro, *Failed Hybrids: The Death and Life of Bluetooth Proximity Marketing*, 9 MOBILE MEDIA & COMM. 465 (2021).

84. Dieter Oosterlinck, Dries F. Benoit, Phillippe Baecke & Nico Van de Weghe, *Bluetooth Tracking of Humans in an Indoor Environment: An Application to Shopping Mall Visits*, 78 APPLIED GEOGRAPHY 55, 57 (2017).

85. Michael Kwet, *In Stores, Secret Surveillance Tracks Your Every Move*, N.Y. TIMES (June 14, 2019), <https://www.nytimes.com/interactive/2019/06/14/opinion/bluetooth-wireless-tracking-privacy.html> [<https://perma.cc/VF67-YV46>]; Oosterlinck, *supra* note 84, at 55 (“Tracking methods overcome many of the disadvantages that characterize the more traditional methods. Actual paths, exact time measurement and other high quality statistics can be obtained.”).

86. Lauren Johnson, *Jack in the Box Delivers on Mobile’s Promise of Location-Based Relevancy*, MKTG. DIVE, <https://www.marketingdive.com/ex/mobilemarketer/cms/news/advertising/16347.html> [<https://perma.cc/9F8P-9WMX>].

87. Christopher Mims, *Your Location Data Is Being Sold—Often Without Your Knowledge*, WALL ST. J. (Mar. 3, 2018), <https://www.wsj.com/articles/your-location-data-is-being-sold-often-without-your-knowledge-1520168400> [<https://perma.cc/SFE8-MSBW>] (“Marketers spent \$16 billion on location-targeted ads served to mobile devices like smartphones and tablet computers in 2017. That’s 40% of all mobile ad spending, research firm BIA/Kelsey estimates, and it expects spending on these ads to double by 2021.”).

88. Kwet, *supra* note 85.

89. *Id.*

Companies can even use location data to place physical advertising on the backseats of taxicabs, video screens in elevators, or elsewhere. For instance, Lamar Advertising targeted certain shoppers for the opening of a new DSW store by tracking the cellphones of individuals who had recently shopped at a rival store like Macy's, Kohl's, or Nordstrom Rack.⁹⁰ This allowed Lamar to "geofence" physical screens within a certain area for DSW ads when a threshold of marked phones were detected in that region.⁹¹ Lamar was then able to identify those who had actually visited the DSW store after observing a geofenced ad.⁹²

Whether driven by beacons or not, communication between devices and companies is a critical element of surveillance. An example is Facebook which gathers much of its data from outside companies and, of course, loyalty programs.⁹³ In doing so, the platform uses "tracker-pixels" to exchange data with 30% of the top 10,000 websites.⁹⁴ To put this in perspective, *The Washington Post* reported that one of its journalists' activities had been tracked and shared by 974 websites and apps.⁹⁵

90. Thomas Germain, *Digital Billboards Are Tracking You. And They Really, Really Want You to See Their Ads*, CONSUMER REPS. (Nov. 20, 2019), <https://www.consumerreports.org/privacy/digital-billboards-are-tracking-you-and-they-want-you-to-see-their-ads> [<https://perma.cc/7F4X-2CWJ>] ("When we go out into public, we are often surrounded by screens showing ads. They can be on the side of the road, at the gym, in store windows, in doctors' offices, and in elevators. You might assume that the marketing messages are playing on a loop, but sometimes these ads are changing because people like you are nearby. Data including your gender, age, race, income, interests, and purchasing habits can be used by a company such as Five Tier to trigger an advertisement right away.").

91. *Id.* ("Lamar used geofencing at screens around town, waiting until enough of those phones were detected nearby and then automatically triggering ads . . .").

92. *Id.*

93. See Joanna Stern, *Facebook Really Is Spying on You, Just Not Through Your Phone's Mic*, WALL ST. J. (Mar. 7, 2018), <https://www.wsj.com/articles/facebook-really-is-spying-on-you-just-not-through-your-phones-mic-1520448644> [<https://perma.cc/F9AU-GFKH>] (discussing sources of extractable data including loyalty programs).

94. Geoffrey A. Fowler, *Facebook Will Now Show You Exactly How It Stalks You—Even When You're Not Using Facebook*, WASH. POST (Jan. 28, 2020), <https://www.washingtonpost.com/technology/2020/01/28/off-facebook-activity-page> [<https://perma.cc/RC6F-EW3C>] ("How does Facebook get this info? The social network provides partners tracking software they embed in apps, websites, loyalty cards and other systems. According to research by the Electronic Frontier Foundation, Facebook has so-called tracker pixels or cookie-sharing code on about 30 percent of the top 10,000 websites.").

95. *Id.*

Highlighting the sophistication of surveillance's insights, Facebook stated that the platform can detect when an adolescent is feeling "worthless" or "insecure" in a memo sent to advertisers.⁹⁶ Yet Facebook is not alone. Uber monitored users after their ride had ended and their app closed.⁹⁷ It also developed a means of predicting whether a user is drunk based on the angle at which one is holding their smartphone, manner of walking, and time of night.⁹⁸ Along the same lines, Spotify disclosed technology in a patent that scrutinizes a user's voice and ambient noise in one's room to choose music based on the user's mood, setting, and personality traits such as "agreeableness, extroversion, neuroticism, and conscientiousness."⁹⁹

Another utility of this data is that some companies such as AirBnB and Tinder employ secret rating systems.¹⁰⁰ Tinder analyzes all aspects of a user's profile relative to how third parties interact with it—e.g., swiping—to generate internal ratings and match love interests.¹⁰¹

96. Sam Levin, *Facebook Told Advertisers It Can Identify Teens Feeling "Insecure" and "Worthless,"* GUARDIAN (U.K.) (May 1, 2017), <https://www.theguardian.com/technology/2017/may/01/facebook-advertising-data-insecure-teens> [<https://perma.cc/JA92-69EK>].

97. Laurel Wamley, *Uber Ends Its Controversial Post-Ride Tracking of Users' Location,* NPR (Aug. 29, 2017), <https://www.npr.org/sections/thetwo-way/2017/08/29/547113818/uber-ends-its-controversial-post-ride-tracking-of-users-location> [<https://perma.cc/NS4Y-GSQT>] (describing how Uber can track users even with their app closed).

98. Matt McFarland, *Uber Wants to Patent a Way to Use AI to Identify Drunk Passengers,* CNN BUS. (June 7, 2018), <https://money.cnn.com/2018/06/07/technology/uber-patent-identify-drunks/index.html> [<https://perma.cc/A3R9-MT3S>].

99. *Pitchfork* reported that Spotify can detect "intonation, stress, rhythm, and the likes of units of speech" as well as "identify metadata points such as emotional state, gender, age, accent, and even environment—i.e., whether someone is alone, or with other people—based on audio recording." Noah Yoo, *New Spotify Patent Involves Monitoring Users' Speech to Recommend Music,* PITCHFORK (Jan. 28, 2021), <https://pitchfork.com/news/new-spotify-patent-involves-monitoring-users-speech-to-recommend-music> [<https://perma.cc/FDS4-VAB2>]; Jasmin Jose, *Spotify May Soon Recommend Music Based on Your Emotional State, Surroundings, Patent Tips,* GADGETS 360 (Jan. 29, 2021), <https://gadgets.ndtv.com/entertainment/news/spotify-new-patent-voice-recognition-to-determine-mood-suggest-music-2360101> [<https://perma.cc/FD2T-HXLH>].

100. Kashmir Hill, *I Got Access to My Secret Consumer Score. Now You Can Get Yours, Too,* N.Y. TIMES (Nov. 4, 2019), <https://www.nytimes.com/2019/11/04/business/secret-consumer-score-access.html> [<https://perma.cc/ZX5H-D4AH>] (describing the hidden rating and tracking of users).

101. Austin Carr, *I Found Out My Secret Internal Tinder Rating and Now I Wish I Hadn't,* FAST CO. (Jan. 11, 2016), <https://www.fastcompany.com/3054871/whats-your-tinder-score-inside-the-apps-internal-rankingsystem> [<https://perma.cc/2PVU-G8EE>]; Kaitlyn Tiffany, *The Tinder Algorithm, Explained,* VOX (Mar. 18, 2019),

AirBnB gauges a user's trustworthiness by scrutinizing the person's social media, blog posts, and other content.¹⁰² While companies can internally capitalize on these insights, they may also sell them to third parties like a real estate company or "a Moscow-based troll farm seeking to turn voters in a swing county in Wisconsin."¹⁰³ As one observer noted, "there's no ethics."¹⁰⁴

The value of surveillance is staggering. Instagram, for instance, has made fortunes off insights into fashion culled from the analysis of picture sharing.¹⁰⁵ One report found that Facebook bolstered its advertising revenue by 3,600% even when its usership increased by only 310%.¹⁰⁶ While Facebook earns about \$27 per user in 2019, Google made \$67.¹⁰⁷ A user is worth even more when pregnant, divorcing, moving, or experiencing other life events.¹⁰⁸

Especially salient are the social consequences of habitual tech usage. For instance, research shows that some platforms pursue attention by subjecting users to negative or extremist content in a never-ending stream. The term "doomscrolling" arose from the social media feeds designed to generate attention by presenting unlimited sums of

<https://www.vox.com/2019/2/7/18210998/tinder-algorithm-swiping-tips-dating-app-science> [<https://perma.cc/HQR3-BQSW>]; David McCabe, *How Dating Sites Spy on You*, AXIOS (Feb. 7, 2018), <https://www.axios.com/how-dating-sites-spy-on-you-66b63d32-669d-41cd-9ca1-92d38487b236.html> [<https://perma.cc/7CV5-L9RZ>].

102. Whitney Kimball, *Airbnb's Software Patent Rates Your Psychopathy Based on Your Social Media Activity*, GIZMODO (Jan. 7, 2020), <https://gizmodo.com/airbnbs-software-patent-rates-your-psychopathy-based-on-1840855354> [<https://perma.cc/E3MU-KZ8E>] ("A particular behavior trait can be creating a false or misleading online profile, providing false or misleading information to the service provider, involvement with drugs or alcohol, involvement with hate websites or organizations, involvement in sex work, involvement in a crime, involvement in civil litigation, being a known fraudster or scammer, involvement in pornography, or authoring an online content with negative language.").

103. Lewis, *supra* note 74.

104. *Id.*

105. Emerging Technology from the arXiv, *Data-Mining 100 Million Instagram Photos Reveals Global Clothing Patterns*, MIT TECH. REV. (June 15, 2017), <https://www.technologyreview.com/2017/06/15/105762/data-mining-100-million-instagram-photos-reveals-global-clothing-patterns> [<https://perma.cc/8RAQ-N8U6>].

106. Proton Team, *How Big Tech Monetizes the Whole Internet, Not Just Their Own Platforms*, PROTONMAIL (Oct. 29, 2020), <https://www.protonmail.com/blog/how-big-tech-tracks-users> [<https://perma.cc/P6HS-VTJA>].

107. *Id.*

108. Emily Steel, Callum Locke, Emily Casman & Ben Freese, *How Much Is Your Personal Data Worth?*, FIN. TIMES (June 12, 2013), <https://ig.ft.com/how-much-is-your-personal-data-worth> [<https://perma.cc/PD3A-2S9D>].

anxiety inducing content.¹⁰⁹ According to observers, YouTube has detected that users spend more time on the platform when exposed to curated streams of politically or socially volatile videos, helping it to build a \$160 billion company based on the *one billion hours* spent daily on the platform.¹¹⁰

The above discussion of surveillance capitalism renders two errant as well as paradoxical assumptions. While one group of observers misconstrues surveillance capitalism as a strictly modern form of business, others minimize the effects of Big Tech's voyeurism by analogizing it to older strategies such as a grocery store loyalty program.¹¹¹ The reality is that the depths of covert surveillance and engagement have evolved in ways that have revolutionized the nature of competition. Even though many companies offer "free" content, those services can cause tech addiction, which leads to (or creates) health and economic dangers (or costs), as the next Part explores.

II. THE COSTS OF ATTENTION

Attention markets impose hidden costs by taxing society's mental wellness. The issue is that competition among tech companies may not only overburden a user's cognition but also create addictions resulting in depression and anxiety. Rather than viewing mental health disorders as a social problem, it is also vital to understand the economic costs of attention in light of the waning role of prices in modern markets. A firm can indeed charge too much attention. Section A examines the effects of overexerting one's attention, Section B delves into the long-term consequences, and then Section C explores the economics of taxing society's mental wellness.

109. Angela Watercutter, *Doomscrolling Is Slowly Eroding Your Mental Health*, WIRED (June 25, 2020), <https://www.wired.com/story/stop-doomscrolling> [<https://perma.cc/5LFX-G4KU>].

110. Stuart Dredge, *Morgan Stanley Suggests YouTube Valuation Is \$160bn*, MUSICALLY (May 22, 2018), <https://www.musically.com/2018/05/22/morgan-stanley-suggests-youtube-valuation-is-160bn> [<https://perma.cc/NN76-3LYM>]; John Horgan, *Big Tech, Out-of-Control Capitalism and the End of Civilization*, SCI. AM. (Oct. 7, 2020), <https://www.scientificamerican.com/article/big-tech-out-of-control-capitalism-and-the-end-of-civilization> [<https://perma.cc/6FWZ-FCVV>] (discussing the resulting polarization of society because of YouTube rabbit holes); Casey Newton, *How Extremism Came to Thrive on YouTube*, VERGE (Apr. 3, 2019), <https://www.theverge.com/interface/2019/4/3/18293293/youtube-extremism-criticism-bloomberg> [<https://perma.cc/6FWZ-FCVV>].

111. *Blinding Me*, *supra* note 24 (stating that analogies of modern surveillance to older generations of loyalty programs are incomplete and not helpful).

A. OVER EXERTION AND FATIGUE

Competition for attention can overwhelm individuals. In terms of short term consequences, attention is subject to overload and depletion.¹¹² With respect to overload, people act quicker and less thoughtfully when overwhelmed.¹¹³ The effect is that individuals who are cognitively overloaded make worse choices¹¹⁴ and express more regret.¹¹⁵ In fact, evidence suggests that some people rely on shorthand tools like racism or discrimination to compensate for overload.¹¹⁶ Given the constant stream of content flowing through tech platforms to maintain attention, overload is a logical result.

Whereas overload disturbs active decision-making, “decision fatigue” affects subconscious behaviors. Decision fatigue occurs when a long day of choices causes one, for example, to over-snack or engage in other excessive behaviors.¹¹⁷ A study found that judges deliver harsher rulings after long stretches on the bench but become more sympathetic after rest breaks.¹¹⁸ Scholars cite decision fatigue in explaining “why ordinarily sensible people get angry at colleagues and families, splurge on clothes, buy junk food at the supermarket and can’t resist the dealer’s offer to rustproof their new car.”¹¹⁹ The point is that taxing cognition produces an array of short term effects, as “you

112. Newman, *supra* note 13, at 8 (“[A]vailable cognitive capacity can be either overloaded (presented with too heavy a cognitive load at a given point in time) or depleted via use over time.”) (internal citations omitted).

113. Maria Sicilia & Salvador Ruiz, *The Effects of the Amount of Information on Cognitive Responses in Online Purchasing Tasks*, 9 ELEC. COM. RSCH. & APPLICATIONS 183, 183 (2010).

114. Pamela M. Allen, John A. Edwards, Frank J. Snyder, Kevin A. Makinson & David M. Hamby, *The Effect of Cognitive Load on Decision Making with Graphically Displayed Uncertainty Information*, 34 RISK ANALYSIS 1495, 1501 (2014).

115. Elan Ariel, *Memory and Decision Processes: The Impact of Cognitive Loads on Decision Regret* 10–12 (May 14, 2014) (Undergraduate Research Paper), https://repository.upenn.edu/wharton_research_scholars/108 [<https://perma.cc/8FRB-DQZC>].

116. Newman, *supra* note 13, at 8; Daniël H. J. Wigboldus, Jeffrey W. Sherman, Heather L. Frazese & Ad van Knippenberg, *Capacity and Comprehension: Spontaneous Stereotyping Under Cognitive Load*, 22 SOC. COGNITION 292, 304 (2004).

117. Maria Gamb, *How to Identify When You’re Experiencing Decision Fatigue*, FORBES: WOMENSMEDIA (May 13, 2019), <https://www.forbes.com/sites/womensmedia/2019/05/13/how-to-identify-when-youre-experiencing-decision-fatigue> [<https://perma.cc/4EUJ-G8QG>].

118. Shai Danziger, Jonathan Levav & Liora Avanim-Pessa, *Extraneous Factors in Judicial Decisions*, 108 PROC. NAT’L ACAD. SCI. U.S.A. 6889, 6890 (2011).

119. John Tierney, *Do You Suffer from Decision Fatigue?*, N.Y. TIMES MAG. (Aug. 17, 2011), <https://www.nytimes.com/2011/08/21/magazine/do-you-suffer-from-decision-fatigue.html> [<https://perma.cc/7RDK-AGV2>].

can't make decision after decision without paying a biological price."¹²⁰ Rather than recuperating after rest, over usage of technology can render addiction and lasting injuries impairing mental health, as discussed in the following section.

B. TECHNOLOGY ADDICTION MAY IMPAIR MENTAL WELLNESS

Research paints a picture of how technology addiction creates long-term injuries ranging from anxiety, depression, symptoms of attention deficit hyperactivity disorder (ADHD), to a cascade of socioeconomic problems. As a scholar put it, "mobile devices[] and social media services have caused the largest shock to cognition in human history."¹²¹ This Section reviews research detailing the ways in which compulsive usage of technology may potentially alter the brain and the sociological consequences thereof.

Internet addiction is often said to be physiological. Upon scanning the brains of habitual users and control groups, scholarship has found that social media and video games impair areas of the prefrontal cortex linked to pleasure.¹²² Recalling how tech companies design interfaces, the process is thought to erode gray matter on the prefrontal cortex.¹²³ In doing so, it is theorized to tax parts of the brain responsible for self-control and decision-making, which may increase addiction.¹²⁴ And when individuals detach from a device or platform, they can display classic symptoms of withdrawal.¹²⁵

Tech addiction can in fact generate downstream problems such as depression and anxiety. This dynamic worsens when the reduction of impulse control impedes habitual users from detaching from one's

120. *Id.*; Maria Cohut, *Action Video Games Decrease Gray Matter, Study Finds*, MED. NEWS TODAY (2017), <https://www.medicalnewstoday.com/articles/318839> [<https://perma.cc/K28Q-B438>] ("A new study suggests that playing action video games can be detrimental to the brain, reducing the amount of gray matter in the hippocampus.").

121. Rosenquist et al., *supra* note 76, at 439.

122. Luh Nyoman Alit Aryani & Cokorda Bagus Jaya Lesmana, *Neuropsychiatric Factor and Polymorphism Gene in Internet Addiction*, 2 INT'L J. HEALTH & MED. SCI. 39, 40 (2019).

123. Gergely Darnai, Gábor Perlaki, András N. Zsido, Orsolya Inhof, Gergely Orsi, Réka Horvath, Szilvia Anett Nagy, Beatrix Lábadi, Dalma Tényi, Norbert Kovács, Tamás Dóczy, Zolt Demetrovics & József Janszky, *Internet Addiction and Functional Brain Networks: Task-Related fMRI Study*, 9 NATURE: SCI. REPTS. 1–10 (2019).

124. Kristiana Siste Kurniasanti, Pratiwi Assandi, Raden Irawati Ismail, Martina Wowie Setiawan Nasrum & Tjhin Wiguna, *Internet Addiction: A New Addiction?*, 28 MED. J. INDON. 82, 88 (2019).

125. Aryani & Lesmana, *supra* note 122, at 40.

game or platform.¹²⁶ In important part, scholars believe that internet addiction is generally the cause of depression and anxiety—rather than effect—because gray matter may not only erode as gaming increases but healing tends to occur after cessation,¹²⁷ though a “snowball effect” is thought to exist.¹²⁸

This analysis of the brain’s relationship with technology receives support from sociological research. One article explored the link between technology and depression in Chinese teenagers, concluding that pathological users of technology experienced “severe depression” at a rate of 2.5 times greater than non-pathological users.¹²⁹ Adding nuance to this finding, a study of American students determined that those who already suffer from anxiety or loneliness tend to compensate by increasing their time on the internet.¹³⁰ This form of coping, though, can produce the opposite effect of diminishing one’s mental

126. Lu Liu, Yuan-Wei Yao, Chiang-shan R. Li, Jin-Tao Zhang, Cui-Cui Xia, Jing Lan, Shan-Shan Ma, NanZhou & Xiao-Yi Fang, *The Comorbidity Between Internet Gaming Disorder and Depression: Interrelationship and Neural Mechanisms*, 9 FRONTIERS PSYCHIATRY 1, 7 (2018) (“Importantly, the amygdala reactivity may be modulated by the PFC, and aberrant neural interaction between these two regions has been characterized in depression. Moreover, the amygdala reactivity may be modulated by the PFC, and aberrant neural interaction between these two regions has been characterized in depression.”).

127. Feng Zhou, Christian Montag, Rayna Sariyska, Bernd Lachmann, Martin Reuter, Bernd Weber, Peter Trautner, Keith M. Kendrick, Sebastian Markett & Benjamin Becker, *Orbitofrontal Gray Matter Deficits as Marker of Internet Gaming Disorder: Converging Evidence from a Cross-Sectional and Prospective Longitudinal Design*, 24 ADDICTION BIOLOGY 100, 106–107 (2017); Zahiruddin Othman & Chung Wah Lee, *Internet Addiction and Depression Among College Students in Malaysia*, 24 INT’L MED. J. 447, 450 (2017) (“These findings suggest that alterations in the brain structures involved in the reward system are associated with IGD-related behavioral characteristics. Furthermore, the DLPFC, involved in cognitive control, was observed to serve as a mediator in the association between prolonged gaming and depressed mood.”).

128. Liu et al., *supra* note 126, at 6 (“The results are consistent with the hypothesis that Internet gamers’ symptoms of addiction and depression are reciprocally influenced by each other. Specifically, depression/Internet addiction severity at an earlier time positively predicts addiction/depression severity at a later time point. Thus, addiction and depression severity in online gamers are bidirectionally related, consistent with findings in other addictive disorders.”).

129. Roni Caryn Rabin, *Behavior: Internet Use Tied to Depression in Youths*, N.Y. TIMES: VITAL SIGNS (Aug. 9, 2010), <https://www.nytimes.com/2010/08/10/health/research/10beha.html> [<https://perma.cc/PHY7-66AW>].

130. Phil Longstreet, Stoney Brooks & Ester S. Gonzalez, *Internet Addiction: When the Positive Emotions Are Not So Positive*, 57 TECH. SOC’Y 76, 78 (2019).

wellbeing even further.¹³¹ Similar studies have found a specific relationship with smartphone usage and depression.¹³²

When examining social media in isolation, a 2018 study of Indian adolescents established that compulsive usage of social media produces fatigue and, in turn, anxiety and depression.¹³³ A similar result was found in a 2016 article canvassing over 1,700 social media users in the United States.¹³⁴ Effects on mental health have even been shown to increase with the number of social media accounts¹³⁵ or instant messaging platforms used by a subject.¹³⁶ Social media can especially exacerbate feelings of anxiety and depression when one has recently experienced social rejection.¹³⁷

A related source of anxiety stems from the unlimited streams of perilous or extremist content in newsfeeds. Because algorithms have determined that certain users remain tethered to their screens longer when stress inducing content is displayed, this type of feed is specifically curated and presented.¹³⁸ The effect, as research has found, is

131. *Id.*

132. Zaheer Hussain, Mark D. Griffiths & David Sheffield, *An Investigation into Problematic Smartphone Use: The Role of Narcissism, Anxiety, and Personality Factors*, 6 J. BEHAV. ADDICTIONS, 378, 379 (2017); Asli Enez Darcin, Samet Kose, Cemal Onur Noyan, Serdar Nurmedov, Onat Yilmaz & Nesrin Dilbaz, *Smartphone Addiction and Its Relationship with Social Anxiety and Loneliness*, 35 BEHAV. & TECH. 520, 523 (2016).

133. Amandeep Dhir, Yossiri Yossatom, Duneet Kaur & Sufen Chen, *Online Social Media Fatigue and Psychological Wellbeing—A Study of Compulsive Use, Fear of Missing Out, Fatigue, Anxiety, and Depression*, 40 INT'L J. INFO. MGMT. 141, 148–49 (2018).

134. Liu yi Lin, Jaime E. Sidani, Ariel Shensa, Ana Radovic, Elizabeth Miller, Jason B. Colditz, Beth L. Hoffman, Leila M. Giles & Brian A. Primack, *Association Between Social Media Use and Depression Among U.S. Young Adults*, 33 DEPRESSION & ANXIETY 323, 327 (2016).

135. Brian A. Primack, Ariel Shensa, César G. Escobar-Viera, Erica L. Barrett, Jaime E. Sidani, Jason B. Colditz & A. Everette James, *Use of Multiple Social Media Platforms and Symptoms of Depression and Anxiety: A Nationally-Representative Study Among U.S. Young Adults*, 69 COMPUT. HUM. BEHAV. 1, 4 (2017).

136. Young Wook Ha, Jimin Kim, Christian Fernando Libaque-Saenz, Younghoon Chang & Myeong-Cheoi Park., *Use and Gratifications of Mobile SNSs: Facebook and KakaoTalk in Korea*, 32 TELEMATICS & INFORMATICS 425, 434–35 (2015).

137. See Yaakov Ophir, *SOS on SNS: Adolescent Distress on Social Network Sites*, 68 COMPUT. HUM. BEHAV. 51, 53 (2017) (“The results from the current study supported the three hypotheses. *First*, distress sharing on SNS was found to be associated with social media use and with feelings of social rejection. *Second*, social rejection had a unique contribution to the prediction of distress sharing on SNS beyond the expected effects of social media use. *Third*, an interaction effect was found. The relationship between social rejection and distress sharing on SNS is moderated by levels of social media use. Social rejection and distress sharing on SNS were significantly associated only among individuals with high social media use scores.”).

138. See Katharine Schwab, *“Doomscrolling” Can Break Your Brain. It Can Also Be a*

that the favoritism of negative content harms mental health and polarizes society.¹³⁹

In terms of ADHD, an article in the *Journal of the American Medical Association* asserted that tech addiction creates affiliated symptoms.¹⁴⁰ After following 2,500 teenagers for two years, the study concluded that tech-dependent teenagers struggle to finish tasks and remain still.¹⁴¹ These results were also found in a smaller study of residents of Florence, Italy.¹⁴²

Also note the social consequences of habitual usage. Sufferers are susceptible to losing relationships, jobs, and other aspects of day-to-day life for the sake of fulfilling tech addictions.¹⁴³ And when users extract themselves from their smartphones or social media, it is common for them to display signs of withdrawal such as irritability.¹⁴⁴ Scholars have even found signs of “fight or flight”¹⁴⁵ in teenagers when

Force for Good, FAST CO.(June 12, 2020), <https://www.fastcompany.com/90514867/doomscrolling-can-break-your-brain-it-can-also-be-a-force-for-good> [<https://perma.cc/W7PD-SK6L>] (discussing the relationship between algorithms and doomscrolling).

139. See Damon Centola, *Why Social Media Makes Us More Polarized and How to Fix It*, SCI. AM. (Oct. 15, 2020), <https://www.scientificamerican.com/article/why-social-media-makes-us-more-polarized-and-how-to-fix-it> [<https://perma.cc/Z8HG-VEHE>] (explaining how social media and other technology can create echo chambers, polarizing society).

140. Daniela Hernandez & Betsy Morris, *Frequent Technology Use Linked to ADHD Symptoms in Teens, Study Finds*, WALL ST. J. (July 17, 2018), <https://www.wsj.com/articles/frequent-technology-use-linked-to-adhd-symptoms-in-teens-study-1531839628> [<https://perma.cc/Q4T7-CMSH>].

141. Chaelin K. Ra, Junhan Cho, Matthew D. Stone, Julianne de la Cerda, Nicholas I. Goldenson, Elizabeth Moroney, Irene Tung, Steve S. Lee & Adam M. Levanthal, *Association of Digital Media Use with Subsequent Symptoms of Attention-Deficit/Hyperactivity Disorder Among Adolescents*, 320 J. AM. MED. ASS'N 255, 258 (2018).

142. Silvia Bernardi & Stefano Pallanti, *Internet Addiction: A Descriptive Clinical Study Focusing on Comorbidities and Dissociative Symptoms*, 50 COMPREHENSIVE PSYCHIATRY 510, 514 (2009).

143. Hayley Tsukayama, *This Dark Side of the Internet Is Costing Young People Their Jobs and Social Lives*, WASH. POST (May 20, 2016), https://www.washingtonpost.com/business/economy/for-many-young-americans-compulsive-internet-use-is-a-very-very-real-struggle/2016/05/20/be637a24-130d-11e6-8967-7ac733c56f12_story.html [<https://perma.cc/X7P2-TD8C>].

144. Amanda L. Giordano, Elizabeth A. Prosek, Casey Bain, Audrey Malacara, Jasmine Turner, Kaylia Schunemann & Michael K. Schmidt, *Withdrawal Symptoms Among American Collegiate Internet Gamers*, 42 J. MENTAL HEALTH COUNSELING 63, 66, 71–72 (2020).

145. See Catherine Price, *Putting Down Your Phone May Help You Live Longer*, N.Y. TIMES (Apr. 24, 2019), <https://www.nytimes.com/2019/04/24/well/mind/putting-down-your-phone-may-help-you-live-longer.html> [<https://perma.cc/KP42-BVAV>] (describing the relationship between cortisol and smartphone addiction).

separated from their smartphones.¹⁴⁶ To this end, “the mere presence of smartphones damages cognitive capacity—even when the device is turned off.”¹⁴⁷

Making matters worse, adolescents are especially prone to tech addiction and its effects.¹⁴⁸ This landscape is magnified in girls,¹⁴⁹ as research has found that the heightened risks of tech abuse facing female adolescents is primarily driven by “new media”¹⁵⁰ like social media and smartphones.¹⁵¹

Take Snapchat for example, which incentivizes habitual usage with mechanisms like “streaks.” Two users develop a streak with each day of sharing images represented by a fire emoji but lose their streak after missing a single day of interaction.¹⁵² When a streak nears its end, Snapchat displays a dwindling hourglass, which has been found to create anxiety¹⁵³—psychiatrists describe this dynamic as “Snapchat depression.”¹⁵⁴ Since users perceive streaks as reflecting their popularity or strength of friendships, the “gamifying” of social interactions

146. *Id.*

147. Lewis, *supra* note 74.

148. Rosenquist et al., *supra* note 76, at 444–45.

149. Jean M. Twenge, Thomas E. Joiner, Megan L. Rogers & Gabrielle N. Martin, *Increases in Depressive Symptoms, Suicide-Related Outcomes, and Suicide Rates Among U.S. Adolescents After 2010 and Links to Increased New Media Screen Time*, 6 CLINICAL PSYCH. SCI. 3, 10 (2018).

150. “New Media” has been described mass communication using digital technologies. See Peter K. Yu, *Moral Rights 2.0*, 1 TEX. A&M L. REV. 873, 899 (2014) (referencing new media).

151. Ramin Mojtabai, Mark Olfson & Beth Han, *National Trends in the Prevalence and Treatment of Depression in Adolescents and Young Adults*, 138 PEDIATRICS 1, 6 (2016).

152. See generally Jennifer Powell-Lunder, *Caution: Your Tween May Be Stressing Over Snap Streaks*, PSYCH. TODAY (Mar. 26, 2017), <https://psychologytoday.com/us/blog/lets-talk-tween/201703/caution-your-tween-may-be-stressing-over-snap-streaks> [<https://perma.cc/LVQ9-7EV7>].

153. *Id.*; see also Zoha S., *What Makes Snapchat Streaks So Addictive*, MEDIUM (Aug. 31, 2020), <https://www.medium.com/@zohasabih/what-makes-snapchat-streaks-so-addictive-f2c02f0cf62f> [<https://perma.cc/KS28-F2K5>].

154. Nassir Ghaemi, *Snapchat Depression*, TUFTS NOW (Apr. 17, 2018), <https://www.now.tufts.edu/articles/snapchat-depression> [<https://perma.cc/KAC4-F7Q7>]; Pete Brown, *The Power of Streaks*, LINKEDIN (Feb. 16, 2017), <https://www.linkedin.com/pulse/power-streaks-pete-brown> [<https://perma.cc/H4J6-7WES>] (explaining Snapchat’s gamification of friendships); Kallie K, *Don’t Put Out the Fire—A Snapchat Streak Addiction*, MEDIUM (Dec. 13, 2018), <https://www.medium.com/@kksoftballgirl5/dont-put-out-the-fire-a-snapchat-streak-addiction-9bf7497f2e09> [<https://perma.cc/6SZP-HGA6>] (describing feelings of anxiousness when the hourglass appears).

has ensnared the three-quarters of U.S. teenagers who use Snapchat.¹⁵⁵

This phenomenon has in fact caused the global prevalence of anxiety and mood disorders to spike. Based on metrics such as insurance claims, fill rates of prescriptions, usage of emergency rooms, and surveys,¹⁵⁶ depression and anxiety increased in severity and prevalence right when the tech boom took root after years of staying constant.¹⁵⁷ Especially alarming is the rise of self-harm since 2000, up 34%.¹⁵⁸ Studies have further found not only that “serious distress” increased 71% since 2008, but that technology is the likely culprit.¹⁵⁹

The point is that compulsive usage of devices, games, and social media render deleterious effects on mental health such as elevated rates of depression, anxiety, and ADHD. Rather than an entirely unintended effect, tech is actually designed to increase habitual reliance—especially in adolescents—for the sake of capturing attention.¹⁶⁰ A lesser-known effect concerns how diminished mental health levies systemic economic problems, as explained next.

155. Dayana Hristova, Joseph Dumit, Andreas Lieberoth & Thomas Slunecko, *Snapchat Streaks: How Adolescents Metagame Gamification in Social Media*, GAMI FIN CONFERENCE (2020), <https://psyarxiv.com/nszex/download> [<https://perma.cc/MBN7-ENAA>]; Yael Klein, *How Snapchat Streaks Are Getting Teens Addicted to the App*, EVOLVE TREATMENT CTRS., <https://www.evolve-treatment.com/blog/snapchat-streaks-addicted-teens> [<https://perma.cc/TRM4-MHZZ>].

156. *NIH Study Shows Many Preteens Screen Positive for Suicide Risk During ER Visits*, NAT'L INST. HEALTH (Mar. 11, 2019), <https://www.nih.gov/news-events/news-releases/nih-study-shows-many-preteens-screen-positive-suicide-risk-during-er-visits> [<https://perma.cc/756S-2YRZ>].

157. See e.g., A.H. Weinberger, M. Gbedemah, A.M. Martinez, D. Nash, S. Galea & R.D. Goodwin, *Trends in Depression Prevalence from 2005 to 2015: Widening Disparities in Vulnerable Groups*, 48 PSYCH. MED. 1308, 1311 (2017).

158. *Suicide Mortality by State*, CTR. DISEASE CONTROL & PREVENTION: NAT'L CTR. HEALTH STAT. (2021), <https://www.cdc.gov/nchs/pressroom/sosmap/suicide-mortality/suicide.htm> [<https://perma.cc/6DT3-BZTD>]; see also Hilary Brueck, *Men Working in Construction, Stay-at-Home Moms, and Students Are Committing Suicide in Alarming High Numbers, and It's Part of a Disturbing Trend*, BUS. INSIDER (Nov. 15, 2018), <https://www.businessinsider.com/us-suicide-rate-up-cdc-troubling-trend-2018-11> [<https://perma.cc/9N8E-5TAU>].

159. Twenge et al., *supra* note 3, at 188, 197 (“The results suggest a need for more research to understand the role of factors such as technology and digital media use.”); Hoge et al., *supra* note 1, at S77.

160. See e.g., Powell-Lunder, *supra* note 152 (explaining the stress derived from streaks); Madison Ashley, *Anxiety over Breaking Your Streaks on Snapchat*, ODYSSEY (June 6, 2016), <https://www.theodysseyonline.com/having-anxiety-over-breaking-your-streaks-on-snapchat> [<https://perma.cc/6BPP-A77T>].

C. THE ECONOMIC COSTS

The habitual use of technology generates economic externalities by raising the rates of depression and anxiety. This is due to direct costs—e.g., the price of inpatient or outpatient treatment—as well as indirect costs such as lost productivity or substance abuse.¹⁶¹ Not only have mental disorders become the most common type of workplace disability,¹⁶² but also depression has notably increased as tech addiction grows in prevalence.¹⁶³

For instance, the “value of statistical life”—which gauges the price of remedying mental disorders¹⁶⁴—found that the costs of treatment and lost productivity exceed \$16 trillion worldwide.¹⁶⁵ A similar study estimated the costs levied on workplace performance by querying individuals about missed work and self-reported rates of performance.¹⁶⁶ The research concluded that “the single most expensive category of health problems in their companies is not heart disease, cancer or musculoskeletal illness, but mental disorders.”¹⁶⁷ Compounding matters, the stigma of mental health impedes many workers from seeking treatment or employers from offering it.¹⁶⁸

In investigating the costs of depression specifically, the rate of major depressive disorders impacts the United States to the tune of about \$173.2 billion per year.¹⁶⁹ Research in Australia concluded that

161. Sebastian Trautmann, Jürgen Rehm & Hans-Ulrich Wittchen, *The Economic Costs of Mental Disorders*, 17 EMBO REPS. 1245, 1245 (2016).

162. *Id.* (In 2010, mental and substance abuse disorders constituted 10.4% of the global burden of disease and were the leading cause of years lived with disability among all disease groups”); Theresa Agovino, *Mental Illness and the Workplace*, SHRM (Aug. 3, 2019), <https://www.shrm.org/hr-today/news/all-things-work/pages/mental-illness-and-the-workplace.aspx> [https://perma.cc/BME9-2KVM].

163. See Paul E. Greenberg, Ronald C. Kessler, Howard G. Birnbaum, Stephanie A. Leong, Sarah W. Lowe, Patricia A. Berglund & Patricia K. Corey-Lisle, *The Economic Burden of Depression in the United States: How Did It Change Between 1990 and 2000?*, 64 J. CLINICAL PSYCHIATRY 1465, 1465 (2003).

164. See Trautmann et al., *supra* note 162, at 1246.

165. See *id.*

166. See Howard G. Birnbaum, Ronald C. Kessler, David Kelley, Rym Ben-Hamadi, Vijay N. Joish & Paul E. Greenberg, *Employer Burden of Mild, Moderate, and Severe Major Depressive Disorder: Mental Health Services Utilization and Costs, and Work Performance*, 27 DEPRESSION & ANXIETY 78, 80 (2010) (discussing measurement techniques).

167. See Lerner, *supra* note 40, at 1.

168. See *Mental Health Problems in the Workplace*, 26 HARV. MENTAL HEALTH LETTER 1, 1 (2010).

169. See Paul E. Greenberg, Andree-Anne Fournier, Tammy Sisitsky, Crystal T. Pike & Ronald C. Kessler, *The Economic Burden of Adults with Major Depressive Disorder in the United States (2005 and 2010)*, 76 J. CLINICAL PSYCHIATRY 155, 158 (2015).

the country loses about \$8 billion annually due to depression's effects on productivity.¹⁷⁰ Those who suffer from major depressive disorders lose an average of 27.2 work days each year at the cost of \$83.1 billion.¹⁷¹ Costs elevate as depression worsens since sufferers are more likely to go on disability or become unemployed.¹⁷² And depressed employees who do show up for work tend to produce at diminished rates, known as "presenteeism."¹⁷³

Akin to depression, studies of anxiety have found similar economic effects.¹⁷⁴ One report remarked, "[t]he amount of money companies spend on the [anxiety] of their employees has been rising rapidly—with annual costs increasing twice as fast as all other medical expenses in recent years."¹⁷⁵ Related to anxiety is the prevalence of mood disorders, which similarly erode productivity and tax health care systems.¹⁷⁶

The economic costs of anxiety and depression have notably increased across society in relationship to the rise of tech addiction, as explained in more detail in Part IV. To this end, attention capitalism has been found to generate short-term and long-term injuries affecting mental health, resulting in downstream economic effects. This has produced considerable outrage because the firms most responsible

170. See Welsey P. McTernan, Maureen F. Dollard & Anthony D. LaMontagne, *Depression in the Workplace: An Economic Cost Analysis of Depression-Related Productivity Loss Attributable to Job Strain and Bullying*, 27 *WORK & STRESS* 321, 330 (2013).

171. See Greenberg et al., *supra* note 169, at 158; Ronald C. Kessler, Hagop S. Akiskal, Minnie Ames, Howard Birnbaum, Paul Greenberg, Robert M.A. Hirschfield, Robert Jin, Kathleen R. Merikangas, Gregory E. Simon & Phillip S. Wange, *Prevalence and Effects of Mood Disorders on Work Performance in a Nationally Representative Sample of U.S. Workers*, 163 *AM. J. PSYCHIATRY* 1561, 1564 (2006).

172. Birnbaum et al., *supra* note 166, at 85 ("Regarding workplace performance, when examining different severity groups, there was a consistent trend: respondents with more severe MDD were more likely to be disabled or unemployed. Comparing mildly, moderately, and severely depressed respondents showed a trend that increased MDD severity was associated with increased disability and greater unemployment among nondisabled workforce participants. As a result, the employer burden may underestimate the societal costs of MDD.").

173. See Lerner et al., *supra* note 40, at 11.

174. See generally Deborah L. Hoffman, Ellen M. Dukes & Hans-Ulrich Wittchen, *Human and Economic Burden of Generalized Anxiety Disorder*, 25 *DEPRESSION & ANXIETY* 72 (2007).

175. Angelica LaVito, *Anxiety Is Expensive: Employee Mental Health Costs Rise Twice as Fast as All Other Medical Expenses*, CNBC (Sept. 27, 2018), <https://www.cnbc.com/2018/09/26/employers-are-starting-to-think-about-healthy-differently.html> [<https://perma.cc/22EJ-YX8L>].

176. See Gregory E. Simon, *Social and Economic Burden of Mood Disorders*, 54 *BIOLOGICAL PSYCHIATRY* 208 (2003).

for imposing mental health costs wield an abundance of market power. If tech giants create market failure by excluding competition, should antitrust offer a remedy? After all, the very purpose of antitrust is to promote consumer welfare by combating unreasonable monopolies and trade restraints. The next Part reviews the challenges facing enforcement posed by the rise of digital competition.

III. ANTITRUST, ERAS OF ENFORCEMENT, AND BIG TECH

This Part delves into the Sherman Act to explain why Big Tech has so far evaded antitrust liability, and the reasons why digital markets may compel an overhaul of antitrust law. Due to the Sherman Act's lack of text, courts enjoy wide latitude in defining the scope of its enforcement, which has led them to reform antitrust every few decades as new theories of competition and markets develop. With this in mind, antitrust is ripe for another revolution due to the emergence of digital markets. The issue is prices: courts have long fixated on remedying high prices or restricted output yet today's most prominent monopolists trade in "free" services in exchange for attention, forcing courts, scholars, and agencies to ask whether antitrust's framework remains viable.

Section A reviews the Sherman Act's text, or lack of it, and the resulting eras of enforcement. Section B discusses the current era of antitrust in which enforcement struggles to redress non-price injuries arising from digital markets. Section C explores the debate about whether antitrust must be reformed due to allegations that the enterprise is unable to remedy modern anticompetitive practices.

A. THE SHERMAN ACT

Courts and scholars have historically played a key role in reforming antitrust law due to the paucity of text in the Sherman Act as well as changes in the political landscape. When the Sherman Act was enacted in 1890, Congress left little guidance in the statute about how to interpret it. Per the statute's plain text, the Sherman Act prohibits two forms of conduct in Sections 1 and 2, which are only a few lines long and lacking in detail. Section 1 bans "every" restraint of trade¹⁷⁷ while Section 2 makes it illegal to "attempt to monopolize . . . any part of the trade or commerce."¹⁷⁸ The difference between the two sections is that a restraint of trade (Section 1) requires an agreement among at

177. See 15 U.S.C. § 1.

178. See 15 U.S.C. § 2.

least two parties to exclude competition whereas Section 2 concerns a singular party who achieved market power or will likely do so.¹⁷⁹

After the Sherman Act's passage, the Supreme Court remarked that a literal reading of this statute would ban nearly all forms of business—indeed, an absurd result.¹⁸⁰ The reason why Congress codified such a broad statute is that the legislature intended for future courts to narrow antitrust's scope based on the common law of competition.¹⁸¹ This occurred, for instance, in 1911 when the Supreme Court reviewed English and American common law to hold that the Sherman Act may only condemn “unreasonable” efforts to exclude competition, even though the statute lacks this limitation.¹⁸²

A chief consequence of the Sherman Act's brevity is that courts have reformed antitrust every few decades when antitrust appears to be failing, sparked in large part by shifts in scholarship and political winds. Consider that early interpretations of antitrust were intended to protect small businesses by remedying all types of political, social, and economic harms.¹⁸³ Antitrust's broad scope seemed logical because trusts could raise prices, restrict output, and create cascades of socioeconomic problems such as unemployment,¹⁸⁴ while political turmoil could arise from powerful monopolies and magnates.¹⁸⁵ This vision of antitrust, though, was perhaps *harming competition*. At issue

179. Section 1 forbids a contract or conspiracy which inherently involves two or more parties. *See id.*; 15 U.S.C. § 1.

180. *See Nat'l Soc'y of Pro. Eng'rs v. United States*, 435 U.S. 679, 687–88 (1978) (explaining how the plain language of the Sherman Act would condemn too much); *United States v. Am. Tobacco Co.*, 221 U.S. 106, 112 (1911) (ruling that a conduct must be unreasonable to violate antitrust law).

181. *See* 21 CONG. REC. 2460 (“This must be left for the courts to determine in each particular case.”); *Apex Hosiery Co. v. Leader*, 310 U.S. 469, 489 (1940) (stating that courts should adhere to the intent of the Sherman Act's drafters in construing antitrust law).

182. *Am. Tobacco Co.*, 221 U.S. at 112.

183. *See* Sandeep Vaheesan, *The Evolving Populisms of Antitrust*, 93 NEB. L. REV. 370, 372 (2014) (noting that the Supreme Court thought, at one time, that antitrust was supposed to preserve small businesses); Joshua D. Wright, Elyse Dorsey, Jonathan Klick & Jan M. Rybnicek, *Requiem for a Paradox: The Dubious Rise and Inevitable Fall of Hipster Antitrust*, 51 ARIZ. ST. L.J. 293, 294 (2019) (“For much of its history, antitrust has done more harm than good. Prior to the modern ‘consumer-welfare’ era, antitrust laws employed confused doctrines that pursued populist notions and often led to contradictory results that purported to advance a variety of social and political goals at the expense of American consumers.”).

184. *See* SUSAN BERFIELD, *THE HOUR OF FATE* (2020); Wright et al., *supra* note 183 (describing populism in historical antitrust).

185. *See Oracle Am., Inc. v. Terix Comput. Co., Inc.*, 2014 WL 5847532, at *1 (N.D. Cal. Nov. 7, 2014) (remarking about the threat of large trusts).

was the belief that a market of many small businesses was superior to a market dominated by a few firms, leading courts to condemn acts benefitting consumers like a monopolist who offered high quality goods at low prices.¹⁸⁶ Observers insisted that condemning efficient behemoths to protect inefficient minnows was suffocating competition, which catalyzed an antitrust revolution centered on consumers and microeconomics.¹⁸⁷

Two events in the 1970s ushered in the modern “consumer welfare” standard. The first was academic: scholars from most notably the University of Chicago asserted that antitrust’s preference for small firms was misguided.¹⁸⁸ Robert Bork wrote that some markets produce superior goods at lower prices when dominated by one or two companies.¹⁸⁹ To Bork, the drafters of the Sherman Act sought to enact a “consumer welfare prescription,” suggesting that antitrust should exclusively depend on microeconomic theory in identifying anticompetitive practices.¹⁹⁰ Despite continuing debate over the term “consumer welfare,”¹⁹¹ his approach was largely adopted in 1978 when the

186. *Brown Shoe Co. v. United States*, 370 U.S. 294, 344 (1962) (“But we cannot fail to recognize Congress’ desire to promote competition through the protection of viable, small, locally owned businesses. Congress appreciated that occasional higher costs and prices might result from the maintenance of fragmented industries and markets. It resolved these competing considerations in favor of decentralization. We must give effect to that decision.”).

187. ROBERT BORK, *THE ANTITRUST PARADOX* 66 (1978).

188. Amanda P. Reeves & Maurice E. Stucke, *Behavioral Antitrust*, 86 *IND. L.J.* 1527, 1550–51 (2011) (explaining that, per the University of Chicago scholars, predation by large firms is not a significant risk to consumers).

189. BORK, *supra* note 187, at 66.

190. Gregory J. Werden, *Antitrust’s Rule of Reason: Only Competition Matters*, 79 *ANTITRUST L.J.* 713, 720 (2014) (remarking that Bork’s view of consumer welfare was enhanced allocative efficiency).

191. Bork uttered this phrase in reference to the *total welfare* of all parties involved in a market, ranging from consumers to firms and suppliers. However, the majority of courts interpret the term to prioritize *consumers* above all others. Regardless of theory, antitrust courts assess whether the challenged act lessened market efficiency (from either the perspective of all actors or just consumers), typically measured in dollars. *See generally* John M. Newman, *Procompetitive Justifications in Antitrust Law*, 94 *IND. L.J.* 501, 510 (2019) (“An academic debate still lingers over which market participants’ surplus is relevant to antitrust analysis. Proponents of a total- or social-welfare standard contend that both producer and consumer surplus are relevant, whereas consumer welfare advocates focus solely on consumer surplus. In practice, courts seem to prefer a consumer welfare standard, suggesting that only restraints of trade that increase consumer surplus are potentially justified. If a restraint increases a monopolist’s surplus but decreases consumer surplus, it will likely be condemned—even if the monopolist’s gain from the restraint is so large that it could have hypothetically compensated consumers’ losses.”).

Supreme Court signaled in *GTE Sylvania*¹⁹² that antitrust may only foster economic goals.¹⁹³

The other event was political. Soon after Ronald Reagan's election, he sought to favor business interests by reducing the rate of regulation and thus antitrust liability.¹⁹⁴ His administration slashed the antitrust budgets of the FTC and DOJ, and famously—or notoriously—scaled back the number of cases targeted for enforcement.¹⁹⁵

The result of limiting antitrust to economic goals is that, today, the typical offense concerns whether an unreasonable exclusion of competition produced restricted output or high prices.¹⁹⁶ In other words, modern antitrust protects consumers, not competitors, from anticompetitive conduct that inflicts economic injuries. Some courts and scholars have gone a step further in insisting that output *must* have declined to violate antitrust law.¹⁹⁷ This is because, with restricted output, prices have likely increased (due to elevated scarcity) or decreased quality (since consumers want fewer units), or both.¹⁹⁸ The corollary is also true: acts boosting output are considered procompetitive.¹⁹⁹ While modern antitrust may remedy types of

192. *Cont'l Television, Inc. v. GTE Sylvania, Inc.*, 433 U.S. 36 (1977).

193. See Joshua D. Wright & Douglas H. Ginsburg, *The Goals of Antitrust: Welfare Trumps Choice*, 81 *FORDHAM L. REV.* 2405, 2406 (2013) (analyzing the saliency of *GTE Sylvania*).

194. See Eddie Correia, *The Reagan Assault on Antitrust*, *MULTINATIONAL MONITOR* (Feb. 15, 1986), <https://www.multinationalmonitor.org/hyper/issues/1986/0215/correia.html> [<https://perma.cc/7WB2-SEV2>]; Robert D. Hershey, Jr., *Reagan's Antitrust Explosion*, *N.Y. TIMES* (Jan. 10, 1982), <https://www.nytimes.com/1982/01/10/business/reagan-s-antitrust-explosion.html> [<https://perma.cc/QK7H-7KRZ>].

195. See Gregory Day, *Innovative Antitrust and the Patent System*, 96 *NEB. L. REV.* 829, 858–59 (2018) (reviewing the budgets of the federal antitrust agencies and antitrust actions filed).

196. *Sterling Merch., Inc. v. Nestlé, S.A.*, 656 F.3d 112, 121 (1st Cir. 2011); Herbert Hovenkamp, *Is Antitrust's Consumer Welfare Principle Imperiled?*, 45 *J. CORP. L.* 65, 66 (2020) (“[U]nder the consumer welfare (‘CW’) principle, as most people understand it today antitrust policy encourages markets to produce output as high as is consistent with sustainable competition, and prices that are accordingly as low.”).

197. See John M. Newman, *A Modern Antitrust Paradox: The Output-Welfare Fallacy*, 107 *IOWA L. REV.* (forthcoming 2022).

198. Herbert Hovenkamp, *Whatever Did Happen to the Antitrust Movement?*, 94 *NOTRE DAME L. REV.* 583, 589 (2018) (“Speaking objectively, consumer welfare is improved by high output and low prices, as well as high quality.”); see John B. Kirkwood, *Buyer Power and Exclusionary Conduct: Should Brooke Group Set the Standards for Buyer-Induced Price Discrimination and Predatory Bidding?*, 72 *ANTITRUST L.J.* 625, 650 (2005) (noting that competition should increase output and thus decrease prices).

199. See Day & Stemler, *supra* note 13, at 28 (explaining how even deleterious acts like fraud or coercion that increase output are often considered procompetitive or, at least, do not diminish consumer welfare).

economic problems like eroded quality, innovation, or choice of products,²⁰⁰ the reality is that courts have seldom found an offense without high prices or restricted output.²⁰¹

That said, the nature of zero-price (or cheap) technology poses a challenge for antitrust's contemporary framework. At issue is that tech firms cannot seemingly charge high prices for zero-price goods or restrict output when services are shared in unlimited quantities. The next Section canvasses how today's consumer welfare era assesses whether a tech's design or innovation has diminished consumer welfare in violation of antitrust law, and the antitrust challenges posed by zero-price technology and attention markets.

B. ANTICOMPETITIVE INNOVATION UNDER THE ANTITRUST LAWS

Today, antitrust plaintiffs struggle to impose liability on apps and platforms so long as prices remain low and innovation high. This framework was established soon after *GTE Sylvania* when courts wrestled with whether a company can design a product to violate antitrust law. In the pioneer case, Kodak drove competitors from the market by redesigning its camera to reject rival film.²⁰² The court dismissed the case because Kodak continued to sell older versions of its cameras, ruling that consumers were still free to purchase film made by competitors.²⁰³ In setting a high bar to prove a case of anticompetitive innovation, the holding was cognizant of policy: first, firms lack a duty to innovate, design products, or compete in ways aiding their

200. William M. Sage & Peter J. Hammer, *A Copernican View of Health Care Antitrust*, 65 L. & CONTEMP. PROBS. 241, 242 (2002); *Sterling Merch., Inc.*, 656 F.3d at 121 ("Injury to competition is 'usually measured by a *reduction in output* and an *increase in prices* in the relevant market.") (emphasis in original).

201. See Day & Stemler, *supra* note 54, at 78 (explaining the difficulties of asserting an antitrust claim without high prices).

202. See *Berkey Photo, Inc. v. Eastman Kodak Co.*, 603 F.2d 263, 270–71 (2d Cir. 1979) (discussing the introduction of new film).

203. *Id.* at 287 ("If a monopolist's products gain acceptance in the market, therefore, it is of no importance that a judge or jury may later regard them as inferior, so long as that success was not based on any form of coercion. Certainly the mere introduction of Kodacolor II along with the Pocket Instamatics did not coerce camera purchasers. Unless consumers desired to use the 110 camera for its own attractive qualities, they were not compelled to purchase Kodacolor II—especially since Kodak did not remove any other films from the market when it introduced the new one. If the availability of Kodacolor II spurred sales of the 110 camera, it did so because some consumers regarded it as superior, at least for the smaller format.").

rivals,²⁰⁴ and second, the imposition of antitrust liability on product designs may diminish the incentives to innovate.²⁰⁵

Future cases, though, eased the plaintiff's burden by asking not whether competition was necessarily foreclosed but if the defendant erected barriers to entry in rejecting the preferences of consumers. In *United States v. Microsoft*, Microsoft designed its Windows Operating System ("Windows") so that consumers could no longer deinstall Internet Explorer ("IE").²⁰⁶ While a user could have technically installed a rival browser, the court noted that few people would likely do so.²⁰⁷ This was anticompetitive, the court held, because Microsoft designed Windows to impede rivals, maintain high prices, and render "unpleasant consequences" by "overriding users' choice."²⁰⁸ By emphasizing barriers to entry, economic costs, and consumer preferences, *Microsoft* informed future cases like *Tucker v. Apple Computer, Inc.*²⁰⁹ There, Apple redesigned its iPod to reject music bought from third parties, which excluded competition, raised prices, and rejected the interests of consumers who would have preferred for their iPods to play all kinds of music.²¹⁰

The present challenge is that Facebook, Google, and other tech companies offer innovative goods at zero-prices, casting doubt on

204. *Foremost Pro Color, Inc. v. Eastman Kodak Co.*, 703 F.2d 534, 544–45 (9th Cir. 1983) ("A monopolist, no less than any other competitor, is permitted and indeed encouraged to compete aggressively on the merits, and any success it may achieve solely through 'the process of invention and innovation' is necessarily tolerated by the anti-trust laws." (quoting *Berkey Photo, Inc.*, 603 F.2d at 263)).

205. *United States v. Microsoft Corp.*, 253 F.3d 34, 65 (D.C. Cir. 2001) ("As a general rule, courts are properly very skeptical about claims that competition has been harmed by a dominant firm's product design changes.").

206. *Id.* ("[T]he District Court found that Microsoft designed Windows 98 'so that using Navigator on Windows 98 would have unpleasant consequences for users' by, in some circumstances, overriding the user's choice of a browser other than IE as his or her default browser.").

207. *Id.* ("Microsoft had included IE in the Add/Remove Programs utility in Windows 95, but when it modified Windows 95 to produce Windows 98, it took IE out of the Add/Remove Programs utility. This change reduces the usage share of rival browsers not by making Microsoft's own browser more attractive to consumers but, rather, by discouraging OEMs from distributing rival products. Because Microsoft's conduct, through something other than competition on the merits, has the effect of significantly reducing usage of rivals' products and hence protecting its own operating system monopoly, it is anticompetitive . . .") (internal citations omitted).

208. *Id.* at 54 ("[T]he District Court found that consumers could not now abandon their operating systems and switch to middleware in response to a sustained price for Windows above the competitive level.").

209. *See Tucker v. Apple Comput., Inc.*, 493 F. Supp. 2d 1090 (N.D. Cal. 2006).

210. *Id.* at 1094–95 ("Apple sells the iPod at prices far exceeding those that would prevail in a competitive marketplace.").

whether, or when, consumer welfare can suffer. For instance, when the Philadelphia Taxi Association alongside taxicab companies sued Uber in 2018, the U.S. Third Circuit Court of Appeals noted that an antitrust offense requires consumers to have suffered harm in terms of “prices, quantity or quality of goods.”²¹¹ It then dismissed the case since “low prices benefit consumers regardless of how those prices are set;”²¹² Uber’s ability to decimate the taxi industry with cheap prices reflects, as the court found, the very essence of competition.²¹³ Likewise, in 2018, a district court relied on litigation against Myspace to find that Facebook promotes consumer welfare with zero-priced and high quality services even if Facebook excludes rivals.²¹⁴ And in an earlier case against Google, the district court questioned whether the nature of “free” services can even implicate antitrust review.²¹⁵

In fact, courts have often ruled that an activity is entirely insufficient for antitrust review without a classical economic injury. In *Schuylkill Energy Resources, Inc. v. Pennsylvania Power & Light Co.*, the court ruled that antitrust cannot protect the environment, as it must “reject[] attempts to expand the scope of the antitrust laws to encompass noneconomic interests.”²¹⁶ Another plaintiff alleged that

211. *Phila. Taxi Ass’n, Inc. v. Uber Techs., Inc.*, 886 F.3d 332, 338 (3d Cir. 2018).

212. *Atlantic Richfield Co. v. USA Petroleum Co.*, 495 U.S. 328, 329 (1990).

213. *Phila. Taxi Ass’n, Inc.*, 886 F.3d at 340 (“Uber’s ability to operate at a lower cost is not anticompetitive. Running a business with greater economic efficiency is to be encouraged, because that often translates to enhanced competition among market players, better products, and lower prices for consumers. Even if Uber were able to cut costs by allegedly violating PPA regulations, Appellants cannot use the antitrust laws to hold Uber liable for these violations absent proof of anticompetitive conduct. Even unlawful conduct is ‘of no concern to the antitrust laws’ unless it produces an anticompetitive effect.”).

214. *Sambreeel Holdings LLC v. Facebook, Inc.*, 906 F. Supp. 2d 1070, 1079 (S.D. Cal. 2012) (“The Complaint does not sufficiently allege that Advertising Partners are prohibited from advertising with Sambreeel outside of Facebook, or that Facebook users are prohibited from viewing Sambreeel advertisements or using Sambreeel products on other websites. As stated above, the Complaint lacks allegations that support anticompetitive effects in any forum outside of Facebook.com, and any harm other than harm to Sambreeel itself. Plaintiff therefore fails to allege harm to competition, and is dismissed on that ground.”) (citing *LiveUniverse, Inc. v. MySpace, Inc.*, 304 F. App’x 554, 557 (9th Cir. 2008)).

215. *Kinderstart.com, LLC v. Google, Inc.*, No. C06-2057JFRS, 2007 WL 831806, at *5 (N.D. Cal. Mar. 16, 2007) (“KinderStart cites no authority indicating that antitrust law concerns itself with competition in the provision of free services. Providing search functionality may lead to revenue from other sources, but KinderStart has not alleged that anyone pays Google to search. Thus, the Search Market is not a ‘market’ for purposes of antitrust law.”).

216. 1996 WL 284994, at *3 (E.D. Pa. May 21, 1996), *aff’d*, 113 F.3d 405 (3d Cir. 1997).

anticompetitive conduct caused him emotional turmoil but the court ruled that “injury to reputation, dignity and emotional damages” are not the type of injuries redressable by the antitrust laws.²¹⁷

Due to the obstacles of winning an antitrust claim against purveyors of “free” goods, anxieties about Big Tech have reached a pinnacle. Among the many perceived harms, critics contend that tech giants promote their own products while suppressing rival goods,²¹⁸ abuse their dominance over speech,²¹⁹ monopolize data,²²⁰ threaten national security,²²¹ erode privacy,²²² and undermine personal autonomy.²²³ Nevertheless, few tech giants have suffered antitrust liability despite excluding competition and dominating their respective markets; this is indeed due to the low prices of innovative and high-quality content of platform technology. Given Big Tech’s market power and lack of antitrust scrutiny, Congress held an antitrust hearing on Big Tech during the height of a pandemic.²²⁴ Both Democrats and Republicans agreed that the federal agencies must pursue cases against Google, Facebook, Apple, and Twitter—or some combination thereof—even without high prices *or any prices*.²²⁵

Akin to how political and governmental actors had previously steered enforcement in late 2020 and early 2021, political momentum inspired litigation against Big Tech. The DOJ initiated an antitrust

217. *Christou v. Beatport, LLC*, 849 F. Supp. 2d 1055, 1069 (D. Colo. 2012).

218. See Cristiano Lima, *Democrats Demand Answers on Whether Amazon ‘Lied’ About Data Tactics*, POLITICO (Apr. 23, 2020), <https://www.politico.com/news/2020/04/23/democrats-demand-answers-on-whether-amazon-lied-about-data-tactics-205834> [<https://perma.cc/R6MY-VQKB>].

219. See David Shepardson, *Facebook, Google Accused of Anti-Conservative Bias at U.S. Senate Hearing*, REUTERS (Apr. 10, 2019), <https://www.reuters.com/article/us-usa-congress-socialmedia-idUSKCN1RM2SJ> [<https://perma.cc/8VFFV-JMSA>].

220. See, e.g., Maurice E. Stucke, *Should We Be Concerned About Data-opolies?*, 2 GEO. L. TECH. REV. 275, 275–78 (2018) (discussing “data-opolies”).

221. See Loren Thompson, *Qualcomm Antitrust Case Raises Far-Reaching National Security Concerns*, FORBES (Jan. 28, 2020), <https://www.forbes.com/sites/lorenthompson/2020/01/28/qualcomm-antitrust-case-raises-far-reaching-national-security-concerns> (asserting national security concerns posed by certain monopolies).

222. See, e.g., Day & Stemler, *supra* note 54, at 64 (linking privacy harms and market power).

223. See Day & Stemler, *supra* note 13, at 4 (posing a relationship between eroded decisional privacy and concentrated markets).

224. See generally Cecilia Kang, Jack Nicas & David McCabe, *Amazon, Apple, Facebook and Google Prepare for Their ‘Big Tobacco Moment,’* N.Y. TIMES (July 28, 2020), <https://www.nytimes.com/2020/07/28/technology/amazon-apple-facebook-google-antitrust-hearing.html> [<https://perma.cc/SM66-KUSF>].

225. *Id.*

lawsuit against Google two weeks before the 2020 presidential election, followed by the FTC's action against Facebook.²²⁶ In *Google*, the DOJ claimed that Google paid billions of dollars for Apple to make Google the default option on Apple's devices.²²⁷ Like with *Microsoft*, few consumers opt out of defaults, which allegedly excluded rivals.²²⁸ This case remains in its early stages.

In *Facebook*, an allegation was similarly made that Facebook designed its application programming interfaces (APIs) so that certain parties cannot access Facebook's plugins—such as the like button—if they compete against Facebook or promote one of its rivals.²²⁹ To show that Facebook harmed consumers via anticompetitive innovation, the complaint included emails from employees of Facebook calling the API policy “anti-user,” stating:

[S]o we are literally going to group apps into buckets based on how scared we are of them and give them different APIs? . . . “Going to be building a messenger app? Click here to filter out the APIs we won't let you use!” And what if an app adds a feature that moves them from 2 to 1? Shit just breaks? And a messaging app can't use Facebook login? So the message is, “if you're going to compete with us at all, make sure you don't integrate with us at all.”²³⁰

But so long as antitrust relies on conventional notions of consumer welfare, observers doubt whether antitrust liability will actually result in either case—in fact, a district court has already dismissed the FTC's lawsuit against Facebook, though the FTC has filed a new complaint.²³¹ The claim is that antitrust litigation against Facebook

226. See Complaint, Fed. Trade Comm'n v. Facebook, Inc. (D.D.C. Jan. 13, 2021) (No.1:20-cv-03590) [hereinafter Facebook Complaint].

227. See Complaint at 16, United States v. Google LLC (D.D.C. Oct. 20, 2020) (No.1:20-cv-03010) (“Google has contracted with Apple for many years to preset Google's search engine as the default for Apple's Safari browser and, more recently, other search access points on Apple's mobile devices. When a consumer takes a new iPhone or iPad out of its box, all the significant access points default to Google as their general search provider. Indeed, Google has preset default status for an overwhelming share of the search access points on mobile devices sold in the United States. For mobile browsers, Google is the default search provider for both Apple Safari (approximately 55 percent share) and Google Chrome (over 35 percent share), which together account for over 90 percent of the browser usage on mobile devices in the United States.”).

228. See *id.* at 6; United States v. Microsoft Corp., 253 F.3d 34 (D.C. Cir. 2001) (finding that Microsoft had committed monopolization).

229. See Facebook Complaint, *supra* note 226, at 22.

230. *Id.* at 43. Another claims that the API policy is “anti-user and sends a message to the world (and probably more importantly to our employees) that we're scared that we can't compete on our own merits.” *Id.* at 42.

231. See Cat Zakrzewski & Rachel Lerman, *Court Says FTC Hasn't Provided Evidence Facebook Is a Monopoly, Dismisses Lawsuit*, WASH. POST (June 28, 2021),

and Google will do nothing to help consumers; rather, it will only satisfy populist demands.²³² And given the prior lawsuits in which plaintiffs failed to show how Facebook, Uber, and Google harmed consumers, Big Tech seems beyond antitrust's reach. After all, how can an act erode consumer welfare when a firm has provided innovative and high-quality services at zero prices?²³³ Raising the bar even higher, some courts refuse to find an antitrust offense without restricted output, yet zero-price services like internet searches reflect *unlimited* capacity.²³⁴

A consequence of failing to reign in Big Tech is that digital markets may spell the end of antitrust's consumer welfare era.²³⁵ Since tech giants do not seem to erode traditional notions of consumer welfare, yet harm users within a vacuum of competition, social and political movements may once again force an overhaul of antitrust law, as explained next.

<https://www.washingtonpost.com/technology/2021/06/28/ftc-facebook-antitrust-complaint-dismissed> [<https://perma.cc/96DN-CKYZ>]; see also Michael Davis, *Reassessing the Google Antitrust Case*, U.S. NEWS & WORLD REP. (Nov. 23, 2020), <https://www.usnews.com/news/best-countries/articles/2020-11-23/us-needs-to-reassess-its-antitrust-case-against-google> [<https://perma.cc/Y2VR-F3KL>] (detailing the difficulties of the DOJ's lawsuit against Google: "But you've got a problem. You can't go into court with some vague complaint about how Google is just too big. It's not against the law to be worth more than \$1 trillion. To win the case, your team has to show first that Google has 'monopolized or attempted to monopolize' some market. That's not going to be easy.").

232. Kent Walker, *A Deeply Flawed Lawsuit that Would Do Nothing to Help Consumers*, GOOGLE BLOG (Oct. 20, 2020), <https://blog.google/outreach-initiatives/public-policy/response-doj> [<https://perma.cc/6XQQ-C9YN>] ("Today's lawsuit by the Department of Justice is deeply flawed. People use Google because they choose to, not because they're forced to, or because they can't find alternatives. This lawsuit would do nothing to help consumers. To the contrary, it would artificially prop up lower-quality search alternatives, raise phone prices, and make it harder for people to get the search services they want to use.").

233. *Kinderstart.com LLC v. Google, Inc.*, No. C06-2057JFRS, 2007 WL 831806 (N.D. Cal. Mar. 16, 2007) (ruling that exclusionary conduct does not implicate antitrust review with zero prices); *Phila. Taxi Ass'n, Inc. v. Uber Techs., Inc.*, 886 F.3d 332, 340-41 (3d Cir. 2018) (explaining that antitrust can only remedy a limited scope of economic injuries arising from exclusionary conduct).

234. Newman, *supra* note 197, at 47 (noting that some courts and scholars demand output to decline to impose antitrust liability).

235. *DataCell ehf. v. Visa, Inc.*, No. 1:14-CV-1658 GBL/TCB, 2015 WL 4624714, at *7 (E.D. Va. July 30, 2015) ("If the products in DataCell's market are ideas, then the antitrust laws cannot help DataCell. Congress created antitrust laws to protect free market competition, not to protect the free exchange of ideas. If the products in DataCell's market are classified State Department documents, then the antitrust laws are an even poorer fit. In either case, DataCell cannot fit its grievances into the framework of Sherman Act.").

C. BIG TECH AND THE DEBATE OVER ANTITRUST'S FUTURE

What should occur if digital monopolies harm consumers but do so in ways beyond the current scope of consumer welfare? This question has engendered vibrant debate about whether antitrust must evolve or by how much.²³⁶ Keeping in mind the prominent and longstanding roles of scholarship and federal enforcers in reforming antitrust law; their answers have ranged from “not at all,” or slight changes, to blowing it up.

1. Antitrust Is Just Fine

The first position arising from conservative circles would preserve enforcement as it currently stands.²³⁷ An argument is that seldom have consumers unreasonably suffered harm in the absence of high prices or any prices.²³⁸ They caution that allowing enforcement to crack down on popular enemies like Amazon and Twitter—despite little evidence of harm—would allow populism to lead antitrust astray just like in the pre-consumer welfare eras.²³⁹ To them, modern antitrust is quite capable of adjusting for digital markets.²⁴⁰ The esteemed Richard Posner asserted that no doctrinal problems exist with consumer welfare; rather, “antitrust doctrine is supple enough, and its commitment to economic rationality strong enough, to take in stride

236. See, e.g., Michal S. Gal & Nicolas Petit, *Radical Restorative Remedies for Digital Markets*, 37 BERKELEY TECH. L.J. (forthcoming) (remarking that antitrust has been unable to remedy harms in digital markets, seeking the regime's reform).

237. See, e.g., Elyse Dorsey, Geoffrey A. Manne, Jan M. Rybnicek, Kristian Stout & Joshua D. Wright, *Consumer Welfare & the Rule of Law: The Case Against the New Populist Antitrust Movement*, 47 PEPP. L. REV. 861 (2020) (arguing that the link between lax antitrust enforcement and socio-political problems plaguing society today is dramatized and flawed, and thus does not require a need to fundamentally reshape how we apply competition laws).

238. Wright et al., *supra* note 183, at 300.

239. *Id.* (“We demonstrate that, when evaluated as evidence-based policy proposals, the Hipster Antitrust agenda fails to substantiate its claims and promises. Sometimes the evidence underlying alleged ‘problems’ these proposed policies will solve is simply lacking. In other instances, the Hipster Antitrust movement and its populist proponents conflate the question of whether antitrust enforcement is at the optimal level, i.e., are antitrust institutions doing everything we can and should under the current consumer welfare standard, with the very different conceptual question of whether the standard has failed to serve its purpose.”).

240. Richard A. Posner, *Antitrust in the New Economy*, 68 ANTITRUST L.J. 925, 925 (2001).

the competitive issues presented by the new economy.”²⁴¹ Their conclusion is that antitrust is just fine.²⁴²

It should come as little surprise that the government’s lawsuits against Facebook and Google have caused great dismay within this group.²⁴³ A primary charge is that enforcement against either Facebook or Google risks a Type I error in that the DOJ, FTC, and observers have merely *assumed* diminished consumer welfare, without evidence.²⁴⁴ They assert further that the root of *Facebook* and *Google* is the tendency to “condemn the strange,” which will ultimately harm consumers.²⁴⁵ These scholars assert that consumers *benefit* from Facebook and Google’s growth, and predation of rivals, insisting that Instagram’s booming popularity as Facebook’s subsidiary demonstrates the benefits of competition.²⁴⁶ As one scholar put it:

[T]he government’s action against Google seeks to condemn conduct that benefits consumers. Because of the challenged arrangements, Google makes

241. *Id.*

242. Jonathan M. Barnett et al., *Joint Submission of Antitrust Economists, Legal Scholars, and Practitioners to the House Judiciary Committee on the State of Antitrust Law and Implications for Protecting Competition in Digital Markets*, INT’L CTR. L. & ECON (May 15, 2020), https://laweconcenter.org/wp-content/uploads/2020/05/house_joint_antitrust_letter_20200514.pdf [https://perma.cc/SU28-5WMQ] (rejecting calls for reform, noting that antitrust is currently succeeding in fostering competition).

243. See, e.g., Thom Lambert, *Why the Federal Government’s Antitrust Case Against Google Should—and Likely Will—Fail*, TRUTH ON MKT. (Dec. 18, 2020), <https://www.truthonthemarket.com/2020/12/18/why-the-federal-governments-antitrust-case-against-google-should-and-likely-will-fail> [https://perma.cc/93SK-K8DZ].

244. Geoffrey A. Manne, *Error Costs in Digital Markets*, GAI REP. ON DIGIT. ECON. 33, 88 (“[A]ntitrust enforcers and courts are likely to make costly Type I errors—as seems to have happened in the European Commission’s *Google Shopping* case, for example The decision does not identify actual consumer harm; it infers it from the reduction in traffic to comparison shopping sites, constituting an alleged impairment of an ‘effective competition structure.’”).

245. See Alexander Krzepicki, Joshua D. Wright & John M. Yun, *The Impulse to Condemn the Strange: Assessing Big Data in Antitrust*, CPI ANTITRUST CHRON., Feb. 2020, at 17.

246. James C. Cooper, Joshua D. Wright & John M. Yun, *Testimony on the State of Competition in the Digital Marketplace’ Before the U.S. House of Representatives, Committee on the Judiciary, Subcommittee on Antitrust, Commercial, and Administrative Law* 25–27 (Geo. Mason L. & Econ., Rsch. Paper No. 20-13, 2020) (“Since Facebook’s acquisition, Instagram has grown from 30 million users to well over one billion. During the same period, Facebook grew from approximately 900 million users to over two billion users. *This substantial expansion in users and output are the opposite of what we typically consider an anticompetitive outcome To treat the success and associated exponential output expansion of an acquired product as evidence of an anticompetitive acquisition severely twists the meaning of ‘anticompetitive.’*”) (emphasis added).

its own search services better, is able to license Android for free, ensures the continued existence of independent web browsers like Firefox and Opera, helps lower the price of iPhones and iPads, and spurs innovators to develop new “Internet of Things” devices that can harness the power of the web.

The Biden administration would do well to recognize this lawsuit for what it is: a poorly conceived effort to appear to be “doing something” about a Big Tech company that has drawn the ire (for different reasons) of both progressives and conservatives.²⁴⁷

This has led the Chicago wing of antitrust to assert that the DOJ and FTC’s lawsuits against Big Tech are misguided and destined to fail.²⁴⁸

2. Incremental Change

Another group would evolve antitrust at its margins to emphasize zero-price markets.²⁴⁹ Their research has found that one can pay for social media and other goods in *non-dollar* considerations such as data, asserting that commerce is evident without positive prices.²⁵⁰ The consensus is that anticompetitive practices in zero-price markets are not only economic but can give rise to some of today’s most dangerous monopolies.²⁵¹

This created a problem, though, about which types of injuries arising from zero-price markets should implicate antitrust review. Early debates involved privacy: Should antitrust intervene when a firm has excluded rivals in a manner allowing it to provide less privacy than would prevail in a competitive market—even if prices remain low?²⁵² While some scholars rebuffed expanding antitrust’s scope to emphasize various non-price injuries like privacy,²⁵³ the DOJ turned

247. Lambert, *supra* note 243.

248. See, e.g., *id.*; Joshua D. Wright & Alexander Krzepicki, *Rethinking Foreclosure Analysis in Antitrust Law: From Standard Stations to Google*, CONCURRENTIALISTE (Dec. 17, 2020), <https://leconcurrentialiste.com/wright-krzepicki-foreclosure> [<https://perma.cc/M6AH-P8J7>] (describing the difficulty of proving exclusionary behavior).

249. See generally John M. Newman, *The Myth of Free*, 86 GEO. WASH. L. REV. 513, 524–26 (2018) (investigating the economics of “free”).

250. *Id.*; *Blinding Me*, *supra* note 24.

251. See generally Newman, *supra* note 8 (explaining the anticompetitive dangers in zero-price markets).

252. See James C. Cooper, *Privacy and Antitrust: Underpants Gnomes, the First Amendment, and Subjectivity*, 20 GEO. MASON L. REV. 1129, 1133–34 (2013).

253. Geoffrey A. Manne & R. Ben Sperry, *The Problems and Perils of Bootstrapping Privacy and Data into an Antitrust Framework*, CPI ANTITRUST CHRON., May 2015, at 2–6; Posner, *supra* note 240, at 925 (arguing that antitrust is “supple enough” to remedy the harms of digital markets).

the tide by asserting that enforcement may promote market quality, which should logically include privacy.²⁵⁴

Calls to remedy zero-price injuries gained steam in 2018 when the DOJ's Makan Delrahim spoke forcefully about digital markets. He differentiated digital markets from conventional modes of competition in recognizing that platforms erect barriers to entry by aggregating troves of data.²⁵⁵ While critics of progressive antitrust note that firms have long surveilled and analyzed people, Delrahim remarked that such analogies are "too simplistic to be useful."²⁵⁶ Given the DOJ's authority, his approach tilted the debate towards emphasizing privacy and qualitative ways in which consumers suffer injuries in zero-price markets,²⁵⁷ but it was also restrained in noting that antitrust can accommodate digital markets: "I believe the consumer welfare standard is flexible and adaptable enough for the 21st Century and new business models such as digital platforms."²⁵⁸

That said, no defendant has so far suffered antitrust liability based on, for instance, eroded privacy, casting doubt on whether contemporary antitrust is actually able to govern digital markets. The result is that, to a growing number of scholars, the consumer welfare standard no longer makes sense so long as antitrust prioritizes

254. *Blinding Me*, *supra* note 24 ("Although privacy fits primarily within the realm of consumer protection law, it would be a grave mistake to believe that privacy concerns can never play a role in antitrust analysis.").

255. *Id.* ("Competition law enforcers must carefully understand such business models. Moreover, we cannot afford to be overly formalistic in assessing the potential harms that may be attendant to these kinds of business practices. Today, the extraction of monopoly rents may look quite different than it did in the early 20th century. Therefore, it is not surprising that data and its market value as an asset class would raise competition concerns." Furthermore, "[t]he aggregation of large quantities of data can also create avenues for abuse. That is especially true when the consumer data that is collected, aggregated, and analyzed for commercial use is quite personal and unique in nature.").

256. *Id.*

257. *Id.* ("For example, firms can induce users to give up data by offering privacy protections and other measures to increase consumer confidence in the bargain. Just as antitrust enforcers care about companies charging higher prices or degrading quality as a sign of allocative inefficiency, it may be important to examine circumstances where companies acquire or extract more data from consumers in exchange for less.").

258. Makan Delrahim, *Assistant Attorney General Makan Delrahim Delivers Remarks at the Federalist Society National Lawyers Convention*, U.S. DEPT. OF JUSTICE, Nov. 14, 2019, <https://www.justice.gov/opa/speech/assistant-attorney-general-makan-delrahim-delivers-remarks-federalist-society-national> [<https://perma.cc/QT9A-FRZ5>]; see also *Justice*, *supra* note 14 ("First, as the *Microsoft* case and other enforcement actions involving digital technologies show, we already have in our possession the tools we need to enforce the antitrust laws in cases involving digital technologies. U.S. antitrust law is flexible enough to be applied to markets old and new.").

classical concepts of economic activity like prices, output, and scarcity, as explained next.²⁵⁹

3. Blow It Up

“These are potentially perilous times for antitrust law.”²⁶⁰ One of the first and most influential articles asserting that antitrust must undergo wholesale reforms came in the form of a student note. Published in 2018, and already cited hundreds of times, Lina Khan’s note examined Amazon’s expansiveness.²⁶¹ Khan started with the orthodox premise that Amazon satisfies conventional notions of consumer welfare due to the platform’s low prices, but then argued that this “fails to capture the architecture of market power in the twenty-first century marketplace.”²⁶² To Khan, antitrust works best when it fosters the competitive process rather than relying on poor measures of welfare like prices and output.²⁶³ If her vision was adopted, antitrust would crack down on monopolists like Amazon who have amassed economic and political powers, despite ostensibly satisfying consumers with cheap and high quality goods. Illustrating the power of Khan’s contributions, she is now the chair of the Federal Trade Commission—only three years after her initial publication.

Regardless of any disagreement over Khan’s stance, she helped inspire others to question antitrust’s viability.²⁶⁴ Along this line, Steinbaum and Stucke stated that consumer welfare is not only an improper north star, but that antitrust should benefit stakeholders beyond consumers such as suppliers and producers.²⁶⁵ Others have proposed ways of increasing antitrust’s bite such as proposing types of “no-fault” liability; this approach would fundamentally alter antitrust by condemning tech firms due to their largeness even in the absence of bad acts or high prices.²⁶⁶

259. See, e.g., Khan, *supra* note 15, at 716–17; Gal & Petit, *supra* note 236, at 6–8.

260. A. Douglas Melamed, *Antitrust Law and Its Critics*, 83 ANTITRUST L.J. 269, 286 (2020).

261. Khan, *supra* note 15, at 716–18.

262. *Id.* at 716 (“[A]ntitrust doctrine views low consumer prices, alone, to be evidence of sound competition. By this measure, Amazon has excelled.”).

263. *Id.* at 744–45.

264. See, e.g., John M. Newman, *Antitrust in Digital Markets*, 72 VAND. L. REV. 1497, 1502 (2019) (“This Article contends that digital markets are different, such that they deserve—indeed, demand—unique treatment under the antitrust laws.”).

265. Marshall Steinbaum & Maurice E. Stucke, *The Effective Competition Standard: A New Standard for Antitrust*, 87 U. CHI. L. REV. 595, 602 (2020).

266. See generally Marina Lao, *No-Fault Digital Platform Monopolization*, 61 WM. & MARY L. REV. 755, 765 (2020) (offering a critique of the theory of “no-fault”

The result is that uncertainty prevails over how much antitrust should evolve to account for Big Tech.²⁶⁷ Even renowned scholars like Herbert Hovenkamp—who is far from a radical—queried “is antitrust’s consumer welfare principle imperiled?”²⁶⁸ Moreover, in Delrahim’s last speech as the DOJ’s chief, he proposed the creation of a new agency to deal specifically with digital markets.²⁶⁹ The enterprise’s reformation is perhaps even more likely in light of how scholarship and political actors have historically come together to transform the enterprise when new challenges seem to lay bare antitrust’s failings.

The diminishing role of prices in the modern economy has placed antitrust under great strain as monopolists trade in attention. Not only have tech giants evaded antitrust liability by virtue of providing zero-price services, but their market power has attracted great outrage.²⁷⁰ To observers, the entire consumer welfare approach must be scrapped in favor of, well, something different. The next Part seeks to maintain antitrust’s economic spirit while updating the enterprise for the modern challenges of attention—specifically the mental health crisis caused by attention capitalism. It shows that the monopolization of attention generates conventional types of antitrust injuries in terms of excessive costs and diminished quality. The problem is that antitrust courts and scholars describe issues of mental health as *social* harms, placing the mental health crisis beyond antitrust’s scope.²⁷¹

monopolization).

267. Melamed, *supra* note 260, at 269 (“Perhaps the most compelling evidence of the winds of change is that leading academic economists now appear to take seriously proposals that acquisitions by tech platforms that create ‘risks of anticompetitive effects’ should be prohibited and that large tech platforms like Amazon should be ‘broken apart from any participants on the platform.’”); see also Patrick F. Todd, *Digital Platforms and the Leverage Problem*, 98 NEB. L. REV. 486, 524 (2019) (“Under this proposal, Amazon would be unable to act both as an online marketplace and a seller on its own marketplace, Google would be unable to act as both a search engine and a mapping provider, and Apple and Google would be unable to act as both producers of mobile OSs and apps that run on those OSs.”).

268. Hovenkamp, *supra* note 198, at 583.

269. *Whole New*, *supra* note 27.

270. See, e.g., Ben Unglesbee, *House Report Accuses Amazon of Abusing Market Power*, RETAIL DIVE (Oct. 7, 2020), <https://www.retaildive.com/news/house-report-accuses-amazon-of-abusing-market-power/586582> [https://perma.cc/L9SX-KYRM].

271. See generally Dorsey et al., *supra* note 237 (rejecting the proposition that antitrust laws must be reshaped in order to help remedy the social ills of today).

The next Part challenges this orthodoxy, asserting that mental health constitutes an economic facet of modern competition.

IV. SUPRACOMPETITIVE ATTENTION

This Part argues that inadequate competition incentivizes tech giants to design technology intended to capture attention while of-flooding mental health costs on users and markets. Rather than a social problem—as courts and scholars have assumed—depression, anxiety, and similar afflictions constitute the actual price incurred by users in attention markets. The following research shows that, absent competition, tech firms can be insulated from market forces whereby they may impose greater costs on users than would exist under competitive conditions. This should, per current precedent, offend antitrust law when the firm has designed technology to render “unpleasant” results. Since heightened competition would potentially compel firms to vie for users over non-price dimensions, the following Section makes the case that impaired mental health is the essence *and cost* of attention capitalism, demanding that antitrust intervene.

A. SUPRACOMPETITIVE ATTENTION

With anticompetitive conduct, a tech firm can extract more value from attention and impose greater costs in terms of mental health than would occur under competition. This stance has yet to take root because, most likely, the nature of conventional markets has enabled courts to gauge welfare in terms of dollar prices and output, which no longer seem as relevant. While antitrust may also remedy diminished quality, this has rarely occurred without high prices because, first, supracompetitive prices reflect the most objective measure of welfare and, second, low prices create the presumption of sufficient consumer welfare.²⁷² But as Part III makes clear, scholars have determined that tech addiction embellishes the rates of anxiety and depression; not only have mental disorders become more prevalent in the past decade, but it is seen more keenly in those who give the greatest attention to devices, apps, and platforms.²⁷³ This is akin to paying supracompetitive prices in the absence of competition. The following Section asserts first that companies do in fact compete over mental health which, second, should in certain circumstances establish an antitrust offense.

272. See *supra* Parts III.B, III.C.3 (explaining the reasons why high prices tend to be a condition for liability).

273. See *supra* Part III.

1. Competition over Mental Health

The extent to which tech firms either tax or value mental health is a function of competition. In the absence of prices, firms must compete along non-price dimensions involving both the quality and variety of goods in the market.²⁷⁴ Under competitive conditions, firms would innovate new ways of attracting users, including services valuing mental health when the market lacks such products.²⁷⁵ Even if many users seem to lack this demand *currently*, a benefit of competition is that firms must vie for users by advertising the benefits and costs of each other's products; such a rivalry may flood the market with information about tech's relationship with mental health in ways that could create awareness and demand.²⁷⁶ Users could also punish manipulative firms by simply switching to a competitor.²⁷⁷

To illustrate competition's potential to promote mental health, consider the battle between YouTube, TikTok, and Reels. In light of TikTok's effects on mental processes (discussed in the Introduction), the emergence of competition seems to have inspired YouTube and Instagram to create rival platforms specializing in brief videos known as "Shorts" and Reels.²⁷⁸ A specific goal of Reels and Shorts is that users and parents, in comparison to TikTok, can restrict content aimed at children or guard privacy.²⁷⁹ Whereas TikTok has indeed received criticism for its impact on children, the Shorts platform offers tools for parents to control their children's usage and engagement.²⁸⁰ Notably,

274. Newman, *supra* note 8, at 174–75 (explaining that firms must compete over quality especially in zero-price markets).

275. See generally Richard J. Gilbert & Hillary Greene, *Merging Innovation into Antitrust Agency Enforcement of the Clayton Act*, 83 GEO. WASH. L. REV. 1919, 1921 (2015) (discussing the role of innovation in antitrust).

276. See Day & Stemler, *supra* note 54, at 92–93 (explaining how competition creates vital market information and identifying the current lack of consumer awareness surrounding the issue).

277. *Id.* at 92.

278. Dan Avery, *YouTube Takes Aim at TikTok in the US with the Release of Its Shorts Feature Next Month That Lets Users Upload and Edit 15-Second Videos*, DAILY MAIL (U.K.) (Feb. 17, 2021), <https://www.dailymail.co.uk/sciencetech/article-9271307/YouTube-takes-aim-TikTok-releases-Shorts-month.html> [https://perma.cc/QF48-529F].

279. *Instagram Reels Real Talk: What Parents Need to Know*, CHILD RESCUE COALITION, <https://childrescuecoalition.org/educations/instagram-reels-real-talk-what-parents-need-to-know> [https://perma.cc/4Z7P-HST3]; *TikTok vs. YouTube Shorts: Which One Is Right for You*, VAMP, <https://vamp-brands.com/blog/2021/09/17/tiktok-vs-youtube-shorts-which-one-is-right-for-you> [https://perma.cc/LA5H-TS5W].

280. Todd Spangler, *YouTube New "Supervised" Mode Will Let Parents Restrict Older*

Shorts seems to offer less addictive features than TikTok, which YouTube promotes.²⁸¹

In a similar example, Snapchat's effort to keep users engaged has drawn a competitive response from Facebook. Facebook announced a series of measures meant to make its app less addictive—a notable shift in course—when its new rival Snapchat began to receive criticism over its tactics in creating, as discussed, Snapchat depression.²⁸² Examples include dialing back the public counting of likes even though “likes’ have been the chief currency of Facebook,”²⁸³ and then in 2021, hiding news articles known to engender political fires (and attention) for the sake of reducing society’s anxiety.²⁸⁴ It then publicized a series of digital wellness measures meant to help promote users’ mental well-being.²⁸⁵ Facebook’s subsidiary, Instagram, has likewise instituted a program known as “Project Daisy.”²⁸⁶

In fact, specific evidence that competition affects the degree to which platforms such as Facebook promote privacy and mental health arose from Facebook’s rivalry with Google+. Right before Google+ entered the market in 2011, Facebook intended to redesign its platform so that users could no longer “untag” themselves from unflattering images or any images for that matter, barring users from controlling

Kids’ Video Viewing, VARIETY (Feb. 24, 2021), <https://variety.com/2021/digital/news/youtube-supervised-accounts-kid-controls-1234913968> [<https://perma.cc/LS8J-YF8H>].

281. See Lucas Shaw & Nico Grant, *YouTube’s Quick-Video Answer to TikTok Coming to U.S. in March*, BLOOMBERG (Feb. 17, 2021), <https://www.bloomberg.com/news/articles/2021-02-17/youtube-s-quick-video-answer-to-tiktok-coming-to-u-s-in-march> [<https://perma.cc/P6AN-3MRC>].

282. Ghaemi, *supra* note 154.

283. Kaya Yurieff, *Facebook Is Rolling Out a Test to Hide Your Likes*, CNN (Sept. 26, 2019), <https://www.cnn.com/2019/09/26/tech/facebook-hiding-likes/index.html> [<https://perma.cc/S78Q-SX66>].

284. Kevin Roose & Mike Isaac, *Facebook Dials Down the Politics for Users*, N.Y. TIMES (Mar. 3, 2021), <https://www.nytimes.com/2021/02/10/technology/facebook-reduces-politics-feeds.html> [<https://perma.cc/QM6X-HEYV>] (“Making Facebook less political could satisfy critics who blame it for increasing partisan polarization. But the move could also cut into the time users spend on the app. Many of the most-engaged news stories on Facebook are political, and charged political debates often generate the heavy use and repeat visits that are good for the bottom line.”).

285. Casey Newton, *Facebook and Instagram Add Dashboards to Help You Manage Your Time on Social Apps*, VERGE (Aug. 1, 2018), <https://www.theverge.com/2018/8/1/17636944/facebook-instagramdashboards-time-well-spent-reminders> [<https://perma.cc/Y4SH-ZD6N>].

286. Amy Chozick, *This Is the Guy Who’s Taking Away the Likes*, N.Y. TIMES (Jan. 21, 2020), <https://www.nytimes.com/2020/01/17/business/instagram-likes.html> [<https://perma.cc/D9X8-4K2K>].

content about themselves.²⁸⁷ This plan came to a halt when Google+ emerged. Fearing that users would flock to Google+ if they learned of Facebook's assault on privacy (a significant source of user anxiety²⁸⁸), a Facebook executive lamented, "IF ever there was a time to AVOID controversy, it would be when the world is comparing our offerings to G+."²⁸⁹

Other instances where competition has led tech companies to foster mental health include Apple's competition against Google in which both companies redesigned devices with digital wellness tools.²⁹⁰ Perhaps rather than an altruistic development, they seemingly sought to compete against each other by, first, informing consumers of the dangers of tech addiction in order to, second, sell them a product; as one observer put it "[t]ech companies have co-opted the movement, turning 'digital wellness' into a Goopified trend that functions as marketing," recognizing that "digital well-being as marketing" improves the tech giants' brand images.²⁹¹

In light of the link between competition and mental health, the next discussion asserts that this should form the basis of a potential antitrust offense. It explains that market failure arises when a firm designs a product to erect barriers to entry, enabling the firm to extract above-market levels of value from attention while externalizing the supracompetitive costs of maintaining it—this should entail a classic type of antitrust injury.

2. The Antitrust Offense

Given the relationship between anticompetitive conduct and elevated mental health costs, antitrust's framework is equipped to condemn tech designs and innovations that overly impair one's cognition. As explained in Part III, the Sherman Act redresses circumstances where an innovation or tech design has erected barriers to entry and, as a result, imposes supracompetitive costs on users. In *Microsoft* and

287. Complaint at 27, *State of New York v. Facebook, Inc.*, No. 20-cv-03589 (Dec. 9, 2020, D.C.C.).

288. *Data Privacy: New Global Survey Reveals Growing Internet Anxiety*, U.N. CONF. ON TRADE & DEV. (Apr. 16, 2018), <https://unctad.org/news/data-privacy-new-global-survey-reveals-growing-internet-anxiety> [<https://perma.cc/SNY7-AA6Z>] (explaining survey data of growing anxiety due to diminished digital privacy).

289. Complaint at 27–28, *New York v. Facebook, Inc.*, No. 20-cv-03589 (Dec. 9, 2020, D.D.C.).

290. Arielle Pardes, *Quality Time, Brought to You by Big Tech*, WIRED (Dec. 31, 2018), <https://www.wired.com/story/how-big-tech-co-opted-time-well-spent> [<https://perma.cc/A2AK-ELRQ>].

291. *Id.*

Tucker, antitrust offenses derived from how each company redesigned a product to impede competition and preserve high prices while rejecting the preferences of consumers.²⁹² Key to these and other cases is whether the challenged innovation could plausibly benefit users or whether the chief effect was to exclude competition and create supracompetitive profits.²⁹³ This same analysis should apply here when a firm has designed technology to exclude competition and tax cognition without benefiting consumers, thereby creating a market failure fitting within antitrust's remedial scope.

Consider how platforms, apps, and devices have innovated arrays of tech designs to monopolize attention without offering a tangible benefit to consumers. Just like with *Microsoft* and *Tucker*, the manipulation of cognition creates unduly high switching costs without providing users with a tangible benefit, which may entail a form of exclusionary conduct. Twitter's app opens with a blue screen and pulsating bird that appears like the app is loading—the purpose is supposedly to generate anticipation for one's tweets and, in the process, maximize dopamine.²⁹⁴ When refreshing one's newsfeed on the Facebook app, it produces a spinning wheel and noise appearing like the loading of content; critics contend, though, that this design is intended to build anticipation.²⁹⁵ Another tactic is the infinite scroll, which plays on the belief that users would cease engaging with the app if they were ever to find the end.²⁹⁶ And as already explained, apps like Instagram are said to withhold likes to create a variable reward schedule.²⁹⁷ In fact, companies like *Dopamine Labs* promise clients that it can hack attention via the brain's neural pathways.²⁹⁸ As Facebook's

292. See *supra* notes 200–210 and accompanying text.

293. See, e.g., *In re Keurig Green Mountain Single-Serve Coffee Antitrust Litigation* 383 F. Supp. 3d 187, 215 (S.D.N.Y. 2019) (ruling that Keurig violated antitrust law when it redesigned its Keurig machine to eliminate competition in the K-cup market).

294. Mike Brooks, *The "Vegas Effect" of Our Screens*, PSYCH. TODAY (Jan. 4, 2019), <https://www.psychologytoday.com/us/blog/tech-happy-life/201901/the-vegas-effect-our-screens> [<https://perma.cc/2CUK-K46F>].

295. *Id.*

296. Nitasha Tiku, *The WIRED Guide to Internet Addiction*, WIRED (Apr. 18, 2018), <https://www.wired.com/story/wired-guide-to-internet-addiction> [<https://perma.cc/5QS3-CVNB>].

297. Trevor Haynes, *Dopamine, Smartphones & You: A Battle for Your Time*, HARV. UNIV.: SCI. IN NEWS BLOG (May 1, 2018), <http://sitn.hms.harvard.edu/flash/2018/dopamine-smartphones-battle-time> [<https://perma.cc/X7L7-SPQN>].

298. Jonathan Shieber, *Meet the Tech Company That Wants to Make You Even More Addicted to Your Phone*, TECHCRUNCH (Sept. 8, 2017), <https://techcrunch.com/2017/09/08/meet-the-tech-company-that-wants-to-make>

cofounder, Sean Parker, said about the thought process behind the platform's design, "How do we consume as much of your time and conscious attention as possible?"²⁹⁹

The implication is that the cost of diminished mental health qualifies as market failure remedied by antitrust law when a monopolist can internalize more value from attention than would occur under competition as well as inflict a supracompetitive level of anxiety and depression on users. Thus, if an innovation or tech design erects barriers to entry and erodes allocative efficiency—especially where the design provides little or no benefit to consumers—it should form the basis of an antitrust violation when competition would at least partially alleviate this market failure. So, if tech firms can inflict greater costs related to depression and anxiety than would be possible under competition, how should courts and enforcers determine whether the conduct violates antitrust law? In other words, how should courts measure the anticompetitive effects if mood disorders and anxiety have largely been considered social types of harm existing beyond antitrust's reach? This Article asserts, as explained next, that users suffer economic costs from elevated rates of anxiety and depression equating to supracompetitive prices and other classic antitrust injuries like diminished quality, innovation, and consumer choice.

a. Supracompetitive Prices

Firms in uncompetitive markets can innovate and design technology to capture heightened levels of attention, rendering the equivalent of above-market prices via depression and anxiety. This should equate to a classic type of market failure involving supracompetitive prices: in both instances, firms can extract greater value from attention than would exist under competition while inflicting actual economic costs on consumers. In this sense, the mounting rates and costs of mental disorders linked to tech addiction render similar effects as raising prices in conventional product markets. A chief benefit of this approach is that it would provide the most logical and seamless avenue to establish an antitrust offense, given the longstanding challenges of proving an antitrust violation without high prices.

To be sure, first, scholarship has found that tech abuse increases monetary costs in the forms of depression and anxiety³⁰⁰ and, second,

-you-even-more-addicted-to-your-phone [<https://perma.cc/VFJ5-VQRE>].

299. Parkin, *supra* note 22 (internal quotation marks omitted).

300. See, e.g., *How Heavy Use of Social Media Is Linked to Mental Illness*, ECONOMIST (May 18, 2018), <https://www.economist.com/graphic-detail/2018/05/18/how>

the addition of competition causes dominant firms to reduce the amount of value extracted from attention to competitive levels while prioritizing their users' mental health. As examples, studies have uncovered a link between the rising costs of mental health and social media³⁰¹ as well as a relationship between compulsive smartphone usage and declining workplace productivity.³⁰² In fact, the global prevalence of anxiety and mood disorders increased suddenly with the tech and internet booms—far from coincidental, scholars insist that habitual tech usage is the root cause of the mounting mental health crisis.³⁰³ As a scholar noted, "Twice as many teenagers now have depression as a generation ago. This high rate of depression has no biological explanation. Instead, it appears to be caused by engagement with social media on smartphones."³⁰⁴ The point is that firms can use exclusionary means to capture supracompetitive levels of attention, which levies actual economic costs on users that would abate under competitive conditions.

Inadequate competition has enabled firms to externalize the costs of mental health while added competition has been shown to mitigate this type of anticompetitive effect. Critically, platforms facing emerging competition have noted that their new policies and services—meant to guard a user's mental health—*will diminish revenue*. Whereas firms can charge high prices in the absence of competition, the increase of competition has predictably levied the opposite result: platforms have dropped prices—here measured in attention—to competitive levels due to mounting market forces. When Facebook sought to compete against Snapchat by deemphasizing polarizing news stories in 2018, it stated that it would cost the company 50 million hours per day.³⁰⁵ In this instance, Facebook expressly prioritized

-heavy-use-of-social-media-is-linked-to-mental-illness [https://perma.cc/GF66-XBMQ] (discussing the effect of mental health disorders, linked to diminished GDP).

301. See, e.g., Mike Conway & Daniel O'Connor, *Social Media, Big Data, and Mental Health: Current Advances and Ethical Implications*, 9 CURRENT OP. PSYCH. 77, 78–79 (2016).

302. See, e.g., Éilish Duke & Christian Montag, *Smartphone Addiction, Daily Interruptions and Self-Reported Productivity*, 6 ADDICTIVE BEHAV. REPS. 90, 91 (2017) (linking the over usage of smartphones with rising costs derived from addiction and similar issues).

303. Byeongsu Park, Doug Hyun Han & Sungwon Roh, *Neurobiological Findings Related to Internet Use Disorders*, 71 PSYCHIATRY & CLINICAL NEUROSCIENCES 467, 468 (2017).

304. Ghaemi, *supra* note 154.

305. Kerry Flynn, *Facebook's Traffic Is Down 50 Million Hours per Day as Zuckerberg Demands Fewer "Viral Videos,"* MASHABLE (Jan. 31, 2018), <https://>

mental health as it relaxed its grip on attention and, critically, supracompetitive profits as competition emerged.

The implication is that concentrated tech markets enable dominant firms to impose elevated levels of *monetary* costs on users. Then when competition increases, market forces compel firms to compete over mental health in causing dominant firms to charge less attention and inflict less harm measurable in dollars. Thus, to establish an antitrust offense, plaintiffs should be able to show that an innovation or tech design was primarily meant to raise barriers to entry rather than improving the product's quality in a manner inflicting elevated costs on mental health. Ideally, as the above examples indicate, heightened competition would force firms to extract less revenue from attention while better providing for mental health—this is indeed a purpose of antitrust.

b. Diminished Quality

Even without accepting that diminished mental health equates to a supracompetitive price, case law suggests that antitrust may remedy elevated levels of anxiety or depression as qualitative harms of anti-competitive behavior. This is, however, hardly the majority stance, as the issue has seldom been litigated.³⁰⁶ In the rare case, the U.S. Southern District of New York ruled in *New York Medscan LLC v. New York University School of Medicine* that mental health is something that antitrust may potentially promote.³⁰⁷ There, the defendants were hospitals that excluded doctors from the market, which forced patients to switch hospitals or doctors.³⁰⁸ This type of mental anguish levied “an adverse emotional impact on patients” and thereby eroded the market's quality in violation of the antitrust laws, as the court held, because “a decline in quality is among the injuries that the antitrust laws were designed to prevent.”³⁰⁹ To this court, a market generating more anxiety than would exist under competitive conditions is qualitatively inferior for antitrust's purposes.

Remarkably, though, no court has followed *New York Medscan*, and some courts have distinguished their cases or found a lack of

mashable.com/2018/01/31/facebook-earnings-2017-50-million-hours-per-day-traffic [https://perma.cc/35L4-D8CZ].

306. Day & Stemler, *supra* note 13, at 21–23 (explaining that digital harms such as addiction and mental anguish would unlikely create an antitrust offense at current time).

307. 430 F. Supp. 2d 140 (S.D.N.Y. 2006).

308. *Id.* at 147.

309. *Id.* at 147–48.

evidence to conclude that emotional anguish has qualitatively harmed consumers.³¹⁰ In fact, the conventional approach is that one's mental health exists beyond the bounds of antitrust's scope, as illustrated by an engineer who alleged that two companies sought to ruin his reputation—thereby mitigating the force of his criticism—in an effort to monopolize the market for rocket motors.³¹¹ The court dismissed his lawsuit on the grounds that his emotional harm was “unrelated to price competition or economic freedom among competitors. It is clearly not the type of anticompetitive injury that the antitrust laws were meant to protect against.”³¹² At the root of this opinion, as well as similar ones, is the belief that mental harm is non-economic in nature. Thus, while courts have held that mental health effects exist beyond antitrust's reach as a non-economic injury, at least one court has recognized this form of harm as diminishing the market's quality.

c. Consumer Choice and Innovation

It is also recognized that antitrust may promote diversity of products on the market as well as innovation.³¹³ As the above examples make clear, consumers would benefit from the addition of services meant to protect mental health—services which would likely arise in a more competitive market. In each of the above examples of firms encountering newfound competition in digital markets, they sought to vie for users with digital wellness programs as well as by offering new types of services valuing mental health. In turn, supracompetitive attention should create an antitrust injury with respect to consumer choice and innovation. First, firms can ignore demands for digital

310. See, e.g., *Zoellner v. St. Luke's Reg'l Med. Ctr., Ltd.*, No. 1:11-cv-00382-EJL, 2012 WL 2326070, at *4 (D. Idaho June 19, 2012) (“New York Medscan [sic], however, is distinguishable, namely because the plaintiffs alleged facts supporting reduced competition; they did not rely solely on reduced quality. . . . Further, the court observed that the alleged reduction in quality was an effect of reduced competition.”); *Guinn v. Mount Carmel Health*, No. 2:09-cv-226, 2012 WL 628519, at *7 (S.D. Ohio Feb. 27, 2012) (“Unlike the patients in New York Medscan, the patients at issue here were not forced to go to a physician that utilized different equipment, which impacted adversely the accuracy of the test results and would have an effect on their treatment. Nor were any patients forced to change facilities at which they had been receiving their treatments thereby disturbing the continuity of their treatment, resulting in an adverse emotional impact on patients. No reasonable inference can be made from Dr. Guinn's allegations that the patients at issue here suffered any ill effects in the quality of their care by removing him as their physician.”).

311. *Boisjoly v. Morton Thiokol, Inc.*, 706 F. Supp. 795, 805 (D. Utah 1988).

312. *Id.*

313. See, e.g., Robert H. Lande, *A Traditional and Textualist Analysis of the Goals of Antitrust: Efficiency, Preventing Theft from Consumers, and Consumer Choice*, 81 *FORDHAM L. REV.* 2349, 2396–97 (2013).

wellness programs so long as no other company competes along those lines, causing the market to offer an insufficient variety of products. Even if a monopolist loses some “marginal” users³¹⁴ who refuse to patronize markets without services valuing mental health, the monopolist can nevertheless derive more value from extracting supracompetitive attention rather than placating to every user.

A related effect is innovation. Innovation lies at the heart of competition because it involves the creation of new products meant to take sales away from other firms.³¹⁵ Without competition, firms encounter fewer incentives to foresee what users may want or how to supply it.³¹⁶ Thus, even if a dominant firm might not be opposed to creating services designed to value mental health, it may still opt against incurring the sunk costs of innovation when it has already claimed a monopoly share of the market.³¹⁷ To this end, exclusionary conduct may create an antitrust offense when consumers who prioritize mental health lack such products due, in many instances, to suboptimal innovation.

3. Discussion

This Article argues that courts and enforcers must recognize the ways in which depression, anxiety, and similar ailments reflect the true costs suffered by users in attention markets, especially as antitrust’s longstanding metrics of consumer welfare such as prices or output wane in relevance. Rather than a social injury, as courts and scholars have sometimes assumed, anxiety and mood disorders generate predictable economic harms due to direct costs—e.g., the price of inpatient or outpatient treatment—as well as indirect costs such as lost productivity or substance abuse.³¹⁸ As noted above, an array of firms have sought to monopolize attention until competitors enter their markets. At which point, market forces have driven them to innovate and offer services valuing mental health, reflecting an unmet demand in the current market. And when dominant firms have been

314. See Alan J. Meese, *Tying Meets the New Institutional Economics: Farewell to the Chimera of Forcing*, 146 U. PA. L. REV. 1, 26 (1997) (describing the concept of “marginal consumers,” which involves those who leave the market as prices rise).

315. See, e.g., J. THOMAS ROSCH, FED. TRADE COMM’N, *ANTITRUST REGULATION OF INNOVATION MARKETS* 4–9 (2009) (explaining the importance of innovation in antitrust and competition).

316. Jonathan B. Baker, *Beyond Schumpeter vs. Arrow: How Antitrust Fosters Innovation*, 74 ANTITRUST L.J. 575, 575–77 (2007) (discussing the intellectual debate about why competition and thus antitrust should promote innovation).

317. *Id.*

318. Greenberg et al., *supra* note 169, at 158–59.

forced to compete on mental health dimensions, they have expressly noted how relinquishing attention has cost them revenue; in this sense, the creation of competition forced them to reap only market levels of attention while externalizing, again, only market levels. To this end, when a firm erects barriers to entry and generates above market revenue while raising the costs of mental health, it should entail a classic type of antitrust offense. This position would not only modernize antitrust to account for the real costs of exclusionary behavior in attention markets, but also recognize the economic price of mental health while helping to remove some of the stigmas attached to anxiety, depression, and addiction.

B. IMPLICATIONS

1. Conventional Attention Markets

An important question is to what extent does this theory of antitrust liability apply exclusively to digital markets, considering the longstanding role of attention as a market commodity.³¹⁹ A potential argument is that an antitrust offense is possible if insufficient competition enables a monopolist to extract more attention than available in any type of attention market rather than just digital markets.³²⁰ For instance, a monopolist in the television industry could subject consumers to more advertisements than possible under competitive conditions.³²¹ If the degree of attention required is elevated, this could potentially present a matter for antitrust law even in nondigital markets like paper magazines.³²²

While this argument may be logical, it makes more sense to begin in digital markets. The tactics used in digital markets to extract attention have proven to manipulate the brain in ways that create addiction. This is important for antitrust's purpose because it creates measurable economic costs. Further, antitrust courts have demanded that firms embellish a market failure rather than merely exploit a preexisting one.³²³ In the television or magazine context, one could argue that other firms may emerge to compete against the monopolist by

319. See Part I.A.

320. See, e.g., Newman, *supra* note 51 (arguing that charging too much attention should implicate antitrust law if commercials became too intrusive).

321. *Id.*

322. *Id.*

323. *Town Sound & Custom Tops, Inc. v. Chrysler Motors Corp.*, 959 F.2d 468, 492 (3d Cir. 1992) (requiring more than mere market failure, but also an act to create it or perpetuate it).

offering products with less advertising—here, the monopolist has done little to erect barriers to entry or otherwise perpetuate the market failure. With digital markets, however, we can identify an array of tech designs meant to addict users, reject their best interest, as well as, in the process, impose monopoly costs via attention.³²⁴ The exclusionary act is actually built into the product, which implicates a conventional line of precedent under antitrust law. So, whereas this theory should perhaps apply to conventional markets, it would certainly make sense to cabin the theory, at least initially, to digital markets given the easier application to antitrust law.

2. Framers

Recall that the debates preceding the Sherman Act's enactment have long influenced antitrust's scope and interpretation. To Bork in the 1970s, it was the drafters' intention for antitrust to serve exclusively as an economic doctrine, which influenced the statute's trajectory. With that said, it is notable that the drafters discussed matters related to the economics of mental health in debating and enacting the Sherman Act. Senator Sherman argued that a problem with the concentration of power is that it can cause the "mind to be agitated," especially when anticompetitive conditions "disturb social order."³²⁵ Several of the drafters, in fact, spoke about how the trusts caused people to become "distressed" and otherwise suffer in terms of anxiety³²⁶ and even depression.³²⁷ That said, while the drafters certainly did not enact the Sherman Act to serve as a modern regime meant to promote mental health, this dynamic is also not beyond antitrust's bounds. It would indeed seem that the drafters recognized the ways in which mental health is implicated by aspects of competition, suggesting that—at the very least—observers cannot reject this Article's thesis as antithetical to antitrust law.

3. Consumer Protection Laws

An argument could be made that the consumer protection laws should prioritize mental health, considering their current inability to

324. See *supra* notes 280–86 and accompanying text.

325. 21 CONG. REC. 2460 (1890).

326. *Id.* at 2598 ("The people complain; the people suffer; the people in many parts of our country, especially the agricultural people, are in greater distress than they have ever been before."); *id.* at 2469 ("[T]he people are oppressed and distressed by operation of these trusts . . .").

327. *Id.* at 2469 ("The idea seems to have become prevalent all over the country that anything which is wrong, anything oppresses or depresses the people, must be remedied by Congress.").

do so.³²⁸ This is likely true. While this Article argues that antitrust provides a logical and, importantly, existing means of doing so, scholars are invited to achieve this same end through consumer protection laws. That said, an advantage of using the antitrust laws is that the Sherman Act's brevity provides courts and enforcers significant leeway in interpreting the enterprise. As such, this Article demonstrates the variety of ways in which inadequate competition creates mental health costs akin to supracompetitive prices as well as how competition can be expected to alleviate this market failure; the inference is that courts enjoy the power to interpret antitrust in a way that promotes mental health as an economic dynamic of competition. Thus, while antitrust's flexibility provides an excellent solution to the mounting costs of mental health arising from digital markets, the reformation of consumer protection laws could also help to fill these gaps.

CONCLUSION

As companies capitalize on attention without charging money, the implication is *not* that users may enjoy content without paying a price. The reality is that users incur supracompetitive attention, reflecting the burdens of depression and anxiety flowing from concentrated markets. Rather than a non-economic harm, the cost of monopolizing attention entails the very essence and *price* of modern competition. A benefit of the proposed approach is that it would only modestly reconfigure antitrust law. The issue, however, is that courts have long characterized mental health as a social issue, ignoring the economic costs. This Article highlights not only the severity of mental health problems driven by attention capitalism, but also the economics of this landscape. Consistent with contemporary antitrust, tech monopolists inflict actual costs on users while degrading the quality of tech markets.

328. Day & Stemler, *supra* note 13, at 23–24 (providing in detail the lack of regulation of Big Tech and digital manipulation).