
ARTICLE

ANTITRUST IN ZERO-PRICE MARKETS: FOUNDATIONS

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“Zero-price markets,” wherein firms set the price of their goods or services at \$0, have exploded in quantity and variety. Creative content, software, search functions, social media platforms, mobile applications, travel booking, navigation and mapping systems, and myriad other goods and services are now widely distributed at zero prices. But despite the exponential increase in the volume of zero-price products being consumed, antitrust institutions and analysts have failed to provide an adequate response to markets without prices.

Modern antitrust law is firmly grounded in neoclassical economics, which is in turn centered on price theory. Steeped in price theory, preeminent antitrust theorists have urged that without prices there can be no markets, and consequently no market power. This heavy methodological dependence on positive prices has led antitrust courts and enforcement agencies to overlook potentially massive welfare harms. Unfortunately, recent empirical research confirms that such harms have already occurred.

These failures to conceive of zero-price markets as antitrust “markets” indicate how fundamentally zero prices challenge traditional theories and analytical frameworks.

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This Article establishes a novel taxonomy of customer-facing costs, distinguishing “market-signaling” from “non-market-signaling” costs. Crucially, it demonstrates that market-signaling costs are present in many zero-price contexts. The absence of positive prices thus does not foreclose antitrust scrutiny; “trade,” for purposes of the Sherman and Clayton Acts, encompasses zero-price transactions. To continue ignoring welfare harms in these markets would be both unjust and inefficient. The Article concludes by identifying antitrust law’s proper role within—and stance toward—zero-price markets.

INTRODUCTION	151
I. THE STRUCTURE OF ZERO-PRICE MARKETS.....	153
A. <i>Sustainable Models</i>	154
B. <i>Nonsustainable Strategies</i>	157
II. ZERO-PRICE MARKETS AND THE APPLICABILITY OF ANTITRUST LAW.....	158
A. <i>The Statutory Standard: “Trade” or “Commerce”</i>	159
B. <i>The Counterargument: No Prices, No Welfare Harms</i>	160
C. <i>A Taxonomy of Costs</i>	163
1. <i>Non-Market-Signaling Costs</i>	163
2. <i>Market-Signaling Costs</i>	164
a. <i>Exchanged Monetary Costs</i>	164
b. <i>Exchanged Information and Attention Costs</i>	165
i. <i>Information Costs</i>	165
ii. <i>Attention Costs</i>	169
c. <i>Zero-Price Products Are Not “Free”</i>	172
III. THE FUNCTION OF ZERO-PRICE MARKETS.....	174
A. <i>The Presence of Competition</i>	174
B. <i>The Role and Efficacy of Competition</i>	177
1. <i>Structural Deviations from Perfect Competition</i>	178
2. <i>Behavioral Deviations</i>	182
a. <i>Not “Just a Number”: Demand and the Zero-Price Effect</i>	183
b. <i>Systematic Overconsumption</i>	186
c. <i>The Limits of Behavioral Antitrust</i>	187
3. <i>Conclusions</i>	189
C. <i>Harm to Competition and Consumers</i>	189
D. <i>Explaining the Failure of Antitrust Law and Economics</i>	195
IV. ANTITRUST LAW IN ZERO-PRICE MARKETS	198
A. <i>The Role and Efficacy of Antitrust</i>	198
B. <i>The Zero-Price Effect and Consumer Welfare</i>	201
C. <i>Antitrust and Privacy</i>	203

CONCLUSION..... 206

INTRODUCTION

Despite its ubiquity and vital importance to the broad economy, antitrust law has failed to develop an adequate response to zero-price markets. Zero-price products—i.e., products for which firms set the price to customers at \$0—have existed for decades.¹ Alongside the advent of the Internet, however, they exploded in number, variety, and popularity.² With a combined market capitalization that easily exceeds \$1 trillion,³ firms offering zero-price products account for a robust and growing portion of the national output.

In light of the critical importance of zero-price markets to the overall economy, antitrust law’s nearly complete lack of attention to their functioning and implications is indefensible. What little precedent and commentary does exist tends to conclude summarily that antitrust law does not apply to “free” products.⁴ Without prices, the argument runs, there can be no markets.⁵ And without markets, there is no need for antitrust scrutiny.⁶

This Article seeks to fill the gap left by, and to refute, these scattered decisions and comments. The choice of title was deliberate: to call zero-price products “free” is to beg the question.⁷ In common usage, “free” denotes zero cost.⁸ If zero-price products were indeed “free,” it would be impossible

¹ David S. Evans, *The Antitrust Economics of Free*, 7 COMPETITION POL’Y INT’L 71, 76 (2011) [hereinafter Evans, *Antitrust Economics*]. Common historical examples include broadcast radio, broadcast television, and zero-price weekly newspapers.

² See, e.g., Chris Jay Hoofnagle & Jan Whittington, *Free: Accounting for the Costs of the Internet’s Most Popular Price*, 61 UCLA L. REV. 606, 606 (2014) (“Offers of free services abound on the Internet.”).

³ See, e.g., *Market Capitalization of the Largest U.S. Internet Companies as of February 2015*, STATISTA, <http://www.statista.com/statistics/209331/largest-us-internet-companies-by-market-cap/> [<http://perma.cc/9VMN-FFZ3>] (last visited Sept. 19, 2015). Of the ten largest Internet companies listed, seven offered primarily or exclusively zero-price products—and these seven firms alone accounted for over \$750 billion in market capitalization.

⁴ See *infra* Section II.B.

⁵ See *infra* notes 60–75 and accompanying text.

⁶ See *infra* notes 70–73 and accompanying text.

⁷ For one example, see Mark R. Patterson, *Google and Search-Engine Market Power*, HARV. J.L. & TECH. OCCASIONAL PAPER SERIES, July 2013, at 17, <http://jolt.law.harvard.edu/antitrust/articles/Patterson.pdf> [<http://perma.cc/HC69-4EUY>] (last visited Sept. 19, 2015). Patterson writes, “In fact, of course, Google provides its search results for free.” *Id.* With that summary conclusion, he dismisses information costs in a footnote, observing without further explanation that “one could take the view that in making searches on a search engine, users provide that search engine with valuable information for which they are not paid.” *Id.* at 17 n.51.

⁸ See, e.g., LAWRENCE LESSIG, *THE FUTURE OF IDEAS: THE FATE OF THE COMMONS IN A CONNECTED WORLD* 12 (2001) (“[W]henever one says a resource is ‘free,’ most believe that a price is being quoted—free, that is, as in zero cost.”).

for consumer welfare to be harmed via the overcharges and output restrictions targeted by antitrust law.⁹ Calling such products “free” without explaining how or why for-profit firms would offer them while getting nothing in return amounts to “the substitution of rhetoric for argument.”¹⁰

After describing the basic structure of zero-price markets in Part I, the Article turns to one of its primary tasks: correcting the rhetoric noted above by demonstrating that “free” products are not free. Toward that end, Part II establishes a novel taxonomy of costs that customers may incur, separating these costs into “market-signaling” and “non-market-signaling.” The first premise of the argument is descriptive—customers of zero-price products pay for those products, primarily by exchanging their attention, information, or both. Given the presence of these market-signaling costs, zero-price products can fall within the statutory scope of the Sherman and Clayton Acts. Further support for this claim is found in the common law of contracts: multiple courts have recognized that information and attention can serve as consideration, thus signaling the presence of an enforceable bargained-for exchange.¹¹ Part II concludes with a deontological claim: by failing to address zero-price markets, the antitrust enterprise¹² has incorrectly deviated from its statutory mandate.

Part III addresses the function and functioning of zero-price markets, demonstrating that they exhibit competition—albeit imperfect (and perhaps highly imperfect) competition. To illuminate further the competitive processes in zero-price markets, Part III draws on a body of behavioral economics research analyzing the effect of zero prices on consumer preferences. With these foundations in mind, Part III then turns to the question of antitrust harm, using a recent historical example as illustrative. In 1996, the Telecommunications Act deregulated ownership in broadcast radio markets.¹³ A massive wave of industry consolidation followed, leaving

⁹ See *infra* Section III.D.

¹⁰ Herbert Hovenkamp, *Rhetoric and Skepticism in Antitrust Argument*, 84 MICH. L. REV. 1721, 1721 (1986); see also David Foster Wallace, *Tense Present: Democracy, English, and the Wars over Usage*, HARPER'S MAG., Apr. 2001, at 39, 47 n.23 (“[L]anguage is . . . irreducibly *public*, *political*, and *ideological*.”); *id.* at 55 (“Usage is always political, of course . . .”). In the consumer protection context, Hoofnagle & Whittington apply a transaction-cost-economics approach to rightly conclude that “free online products and services may give people the impression that firms do not need to recoup the cost of producing the goods they consume. This is not the case.” Hoofnagle & Whittington, *supra* note 2, at 620.

¹¹ See *infra* subsections II.C.2.b.i-ii (discussing *Gottlieb v. Tropicana Hotel & Casino*, 109 F. Supp. 2d 324 (E.D. Pa. 2000), and *Jennings v. Radio Station KSCS, 96.3 FM, Inc., 708 S.W.2d 60* (Tex. App. 1986)).

¹² This phrase is borrowed from HERBERT HOVENKAMP, *THE ANTITRUST ENTERPRISE: PRINCIPLE AND EXECUTION* (2005).

¹³ Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56 (codified as amended in scattered sections of 47 U.S.C.).

many geographical markets highly concentrated or entirely monopolized.¹⁴ Yet the Department of Justice (DOJ) Antitrust Division, which was responsible for reviewing hundreds of industry mergers and acquisitions, never once analyzed whether harm to listeners might result.¹⁵ The intuitions set forth in this Article would contrarily predict the possibility of such harm—and, in fact, recent empirical research confirms that widespread monopoly overcharges of attention costs followed this zero-price-market concentration.¹⁶ Part III concludes with a consequentialist appeal: the ongoing failure to apply antitrust in zero-price markets has already caused—and will continue to cause—substantial harm to society.

Finally, Part IV addresses the role of antitrust law in zero-price markets. The aim is to provide foundational, rather than exhaustive, insights. Many of the tools developed by antitrust and economics scholars are facially inapplicable absent prices, but can be made workable via surprisingly minor alterations.¹⁷ Of immediate importance is recognizing that antitrust law does encompass zero-price markets. The collective failure to do so has already resulted in massive consumer welfare harms. As zero-price markets continue to expand at an exponential rate of growth, persisting in this failure will concomitantly become increasingly detrimental to society. This Article thus concludes with a call to abandon the current path and shift instead toward a more coherent and efficient body of antitrust law, one that takes full account of zero-price markets.

I. THE STRUCTURE OF ZERO-PRICE MARKETS

The antitrust enterprise has paid little attention to the structure and functioning of markets involving zero-price products. What scant commentary exists does, however, provide a useful starting point. This is particularly so with regard to understanding the basic structure of zero-price

¹⁴ See Bruce Houghton, *Why Radio Plays Same 20 Songs: The Sad Truth of Media Consolidation*, HYPEBOT (May 23, 2012), <http://www.hypebot.com/hypebot/2012/05/the-sad-truth-of-media-consolidation-infographic.html> [<http://perma.cc/SZ39-ZUVG>] (“The sad truth of the matter is that only six companies control 90% of the media . . .”).

¹⁵ See *infra* notes 244–45 and accompanying text.

¹⁶ See *infra* notes 237–56 and accompanying text.

¹⁷ I explore these issues, as well as issues relating to antitrust standing, injury, and damages calculations, at length in a draft follow-up to this Article. See John M. Newman, *Antitrust in Zero-Price Markets: Application* (Sept. 19, 2015) (unpublished manuscript) (on file with author) [hereinafter Newman, *Application*].

markets.¹⁸ Consequently, a survey of and contribution to the literature on the predominant zero-price business models follows.

A market involving zero prices is, as a structural matter, very different from the markets that gave rise to modern antitrust law and theory. The central feature exhibited by zero-price markets is the interrelated nature of the relevant products.¹⁹ To profitably offer products at a price of \$0 in the long term, a rational firm must intend to turn a profit in some manner not involving those products.

A. Sustainable Models

Multiple categories of sustainable (i.e., long-run) business models have gained prominence in zero-price markets. These include tying strategies, two- or multisided models,²⁰ and “premium upgrade” or (more commonly) “freemium” models.²¹ The common thread between each of these categories is the presence of interrelated products.²² Where for-profit firms are competing in zero-price markets, invariably they are making money somehow. In this context, they do so by offering some other product that is somehow interrelated with the zero-price product.

¹⁸ Evans, *Antitrust Economics*, *supra* note 1, appears to be the most salient prior work. This Article seeks to fill gaps left by Evans, who focused on the economic structure of markets involving “free” products but less heavily on how the antitrust enterprise should function in such markets. Evans’s primary conclusion was that the presence of a zero-price product should serve as a “red flag” to analysts, signaling that traditional antitrust methodology may be inappropriate. *See id.* at 81 (“The fact that a product is free is not, however, completely irrelevant to the practice of antitrust. A price of zero provides a red flag that the textbook model of competition and standard antitrust analysis do not apply to the product in question.”). As Evans points out, “Many of the issues discussed in this article for free goods also apply to products that are provided at prices below the marginal cost of production.” *Id.* at 86. Where many of the issues Evans discusses apply outside the context of zero prices, this Article confronts squarely and exclusively issues that arise uniquely in zero-price markets. In a subsequent paper, David S. Evans, *Attention Rivalry Among Online Platforms*, 9 J. COMPETITION L. & ECON. 313 (2013) [hereinafter Evans, *Attention Rivalry*], Evans minimizes the importance of consumer-facing product differentiation, in favor of focusing on the competition among online businesses “for a limited amount of attention from consumers.” *Id.* at 315. This argument tends to miss the mark by ignoring the possibility that a monopolist controlling a consumer-facing market could extract supracompetitive amounts of attention. *See infra* notes 233–34 and accompanying text. Many authors have written specifically about Google’s conduct, particularly its alleged manipulation of its search results. For one such (Google-sponsored) article, see James D. Ratliff & Daniel L. Rubinfeld, *Is There a Market for Organic Search Engine Results and Can Their Manipulation Give Rise to Antitrust Liability?*, 10 J. COMPETITION L. & ECON. 517 (2014). Their arguments are discussed in Newman, *Application*, *supra* note 17.

¹⁹ *See* Evans, *Antitrust Economics*, *supra* note 1, at 81.

²⁰ *See* Evans, *Attention Rivalry*, *supra* note 18, at 341–42.

²¹ John M. Newman, *Copyright Freeconomics*, 66 VAND. L. REV. 1409, 1439 (2013) [hereinafter Newman, *Copyright Freeconomics*].

²² Evans, *Antitrust Economics*, *supra* note 1, at 81–82.

The first commonly used zero-price strategy involves complementary products. Firms offering zero-price products often simultaneously offer complementary products.²³ These complementary products may be tied or nontied.

Tying strategies may be either contractual or technological. In a contractual tying arrangement, the sale of one product (the tying product) is conditioned on the sale of the other (the tied product). Where consumers purchase a fixed unit of the tying product and amounts of the tied product that vary with the use of the tying product, the tie is a variable proportion tie.²⁴ Firms can use such arrangements to earn greater profits from users who exhibit greater demand for the tied product—that is, to price discriminate. In *International Salt Co. v. United States*, for example, the defendant contractually conditioned sales of its patented salt processors (purchased in fixed units) on the purchase of salt tablets (purchased in volumes that varied with customer demand).²⁵

Technological ties involve integrating what could be considered as two separate products. Microsoft famously tied its Windows operating system to its Internet Explorer web browser (a non-variable proportion tie, as customers demanded fixed units of each “product”).²⁶ Google has been accused of violating the antitrust laws in similar fashion by bundling its mobile applications with its zero-price Android mobile operating system.²⁷ An example of a variable proportion technological tie involving zero prices can be found in *In re Apple iPod iTunes Antitrust Litigation*.²⁸ Apple was able to offer its proprietary iTunes software—the tying product—to consumers free of charge because it was simultaneously profiting from sales of the tied product: digital music (via its iTunes Store).²⁹ Allegedly, Apple modified the iTunes object code such that only songs purchased from Apple’s iTunes Store (and not from competitors) would play through iTunes.³⁰

²³ Minsuk Han, *Barely Legal: The Antitrust Economics of Free Software: Can Firms Evade Antitrust Scrutiny by Selling Apps for Free?*, CORNELL DAILY SUN (May 2, 2014, 1:00 AM), <http://cornellsun.com/blog/2014/05/02/barely-legal-the-antitrust-economics-of-free-software-can-firms-evade-antitrust-scrutiny-by-selling-apps-for-free/> [<http://perma.cc/MR8H-W7NN>].

²⁴ Erik Hovenkamp & Herbert Hovenkamp, *Tying Arrangements*, in 2 THE OXFORD HANDBOOK OF INTERNATIONAL ANTITRUST ECONOMICS 329, 334 (Roger D. Blair & D. Daniel Sokol eds., 2015).

²⁵ 332 U.S. 392, 394-96 (1947), *abrogated by* *Ill. Tool Works Inc. v. Indep. Ink, Inc.*, 547 U.S. 28 (2006).

²⁶ *United States v. Microsoft Corp.*, 147 F.3d 935, 940 (D.C. Cir. 1998).

²⁷ Class Action Complaint, *Feitelson v. Google Inc.*, No. 5:14-cv-02007 (N.D. Cal. filed May 1, 2014).

²⁸ 796 F. Supp. 2d 1137 (N.D. Cal. 2011).

²⁹ *Id.* at 140; *see also* John M. Newman, *Anticompetitive Product Design in the New Economy*, 39 FLA. ST. U. L. REV. 681, 698 (2012) [hereinafter Newman, *Anticompetitive Product Design*] (“With the iTunes Music Store, Apple was entering a new market—the market for audio-file downloads.”).

³⁰ *Apple iPod iTunes*, 796 F. Supp. 2d at 1146-47.

Some zero-price strategies involving complementary products do not entail tying in either form. For example, many online travel services offer both airline and hotel booking. The two products often are consumed together—they are complements, not substitutes. Yet they are frequently nontied—consumers are free to use one or both.

Not all complementary-products strategies are anticompetitive, regardless whether the relevant products are offered at zero or positive prices.³¹ But the interrelated nature of complementary products does create multiple avenues for anticompetitive behavior by a firm with market power in at least one of the relevant product markets.³²

A second common business form involving zero prices is the multisided platform. Multisided markets comprise multiple distinct groups of customers who interact with one another via a platform, which sits astride the market and, for a fee, performs the function of bringing the customer groups together.³³ In a multisided platform market, at least one of the customer groups positively values the presence of the other. General purpose credit card networks, for example, bring merchants and consumers together via a complex system of acquirers, processors, and issuing banks.³⁴ While merchants pay substantial fees for this service, some cardholders can access it for a price of zero—indeed, many are essentially charged a negative price in the form of loyalty points or other rewards.³⁵ Card networks aside, many (if not most) multisided markets involving zero-price products are at least partially supported by advertising revenues. Broadcast television, content-streaming services, and online search all are widely offered to consumers as zero-price, ad-supported services.³⁶ Profitability in such markets turns on whether

³¹ Variable proportion ties are thought to be *extractive* (they allow producers to extract more from consumers) but not *exclusionary* (they do not exclude rivals from the market).

³² See HANS-WERNER GOTTINGER, *ECONOMIES OF NETWORK INDUSTRIES* 71-73 (2003) (discussing anticompetitive behavior in complementary-goods markets and noting that “complementary markets are susceptible to single-firm dominance because of the need to interface with the dominant firm’s installed customer base in the primary market and because of the dominant firm’s first-mover advantages derived from better and earlier access to the relevant interface”).

³³ For the seminal paper on platform competition, see Jean-Charles Rochet & Jean Tirole, *Platform Competition in Two-Sided Markets*, 1 J. EUR. ECON. ASS’N 990 (2003).

³⁴ See generally Nicholas Economides, *Competition Policy Issues in the Consumer Payments Industry* (providing an overview of the credit card industry), in *MOVING MONEY: THE FUTURE OF CONSUMER PAYMENTS* 113 (Robert E. Litan & Martin Neil Baily eds., 2009).

³⁵ See ROBIN A. PRAGER ET AL., FED. RESERVE BD., DIVS. OF RESEARCH & STATISTICS & MONETARY AFFAIRS, *INTERCHANGE FEES AND PAYMENT CARD NETWORKS: ECONOMICS, INDUSTRY DEVELOPMENTS, AND POLICY ISSUES* 8 (2009) (“[H]igh fees for merchants and low or negative fees for card users may cause overuse of payment cards . . .”).

³⁶ Newman, *Copyright Freeconomics*, *supra* note 21, at 1439-40.

firms who have acquired a group of consumers can then sell those consumers' information or attention (or both) to advertisers or data-seekers.³⁷

Third, businesses may operate using a freemium strategy. This consists of firms offering a basic version of a good or service for \$0, while offering a higher quality version of the service at a positive price.³⁸ Freemium offerings have become particularly prolific in digital-content markets, where they are often combined with ad-supported strategies to form "hybrid" models.³⁹ Hybrid models may feature advertisements for third-party products and/or for the supplier's own for-pay version of the service.⁴⁰

B. *Nonsustainable Strategies*

A second group of zero-price business strategies can be termed "nonsustainable." These are strategies that for-profit firms cannot depend on for long-run profitability. As an initial matter, some products are offered at zero prices for nonfinancial reasons. For example, nonprofit organizations may be able to offer zero-price services at a loss, depending instead on charitable donations for their survival.⁴¹ Individuals also frequently offer goods and services at zero prices, motivated by nonpecuniary (or at least not directly pecuniary) incentives. A classic example is the Linux operating system, which is available free of charge and is maintained by a large open-source community of volunteers.⁴²

Another set of nonsustainable zero-price business strategies depends on recoupment. Firms may temporarily offer zero prices for promotional reasons,⁴³ planning to recoup the costs of the zero-price transactions after

³⁷ See *infra* subsection II.C.2.

³⁸ See generally Koen Pauwels & Allen Weiss, *Moving from Free to Fee: How Online Firms Market to Change Their Business Model Successfully*, J. MARKETING, May 2008, at 14 (providing a general overview of pricing options faced by digital content providers who wish to charge positive prices).

³⁹ See Newman, *Copyright Freeconomics*, *supra* note 21, at 1439.

⁴⁰ See, e.g., *id.* ("For example, Hulu adopted a hybrid freemium model consisting of a stripped-down, ad-supported, zero-price version and a paid-subscription (albeit also ad-supported) service dubbed 'Hulu Plus.'" (citation omitted)).

⁴¹ One example is the Wikimedia Foundation, which operates Wikipedia. See Kamelia Angelova, *Why the Most Popular Online Information Source Is a Non-Profit Organization*, BUS. INSIDER (May 12, 2010, 3:42 PM), <http://www.businessinsider.com/jimmy-wales-wikipedia-non-profit-2010-5> [<http://perma.cc/XQ6D-8YND>]. Wikipedia also draws on volunteer laborers as a zero-price input. Jodi L. Wilson, *Proceed with Extreme Caution: Citation to Wikipedia in Light of Contributor Demographics and Content Policies*, 16 VAND. J. ENT. & TECH. L. 857, 875 (2014).

⁴² *Wallace v. Int'l Bus. Machs. Corp.*, 467 F.3d 1104, 1106 (7th Cir. 2006). See generally *id.* (holding that the GPL open-source copyright license was not a conspiracy in restraint of trade for Sherman Act purposes); Heidi S. Bond, Note, *What's So Great About Nothing? The GNU General Public License and the Zero-Price-Fixing Problem*, 104 MICH. L. REV. 547 (2005) (offering the same argument).

⁴³ These could include, for example, increasing brand image or awareness.

the promotion ends. Similarly, a new entrant might offer zero prices during the entry period in order to attract initial customers, then begin charging positive prices after the product gains sufficient marketplace exposure.⁴⁴ Under this model, the new entrant incurs initial losses in order to gain enough traction (e.g., scale, scope, and market power) to become competitive.⁴⁵ Less benignly, firms may offer zero prices as part of a predatory-pricing scheme.⁴⁶ As with typical predatory-pricing strategies, a firm would initially offer low (here, zero) prices, drive rivals to exit the market, and then recoup any losses by charging monopoly prices.⁴⁷ Scholars have recognized that such schemes may be anticompetitive.⁴⁸

II. ZERO-PRICE MARKETS AND THE APPLICABILITY OF ANTITRUST LAW

Customers incur multiple types of costs en route to accessing zero-price products. Some of these are the types of costs that do not necessarily signal the presence of markets. Others, however, do signal marketplace activity—“trade” or “commerce” in the language of the Sherman and Clayton Acts. Antitrust law applies where customers incur market-signaling costs, even absent above-zero prices.

⁴⁴ See Oliver E. Williamson, *Predatory Pricing: A Strategic and Welfare Analysis*, 87 YALE L.J. 284, 336-37 (1977) (noting that such a model “allows the new [market] entrant greater latitude by permitting very low prices (even give-aways) for announcement purposes,” and “thus encourage[s] customers to try the product on an experimental basis”).

⁴⁵ Cf. Geoffrey A. Manne & Joshua D. Wright, *Google and the Limits of Antitrust: The Case Against the Case Against Google*, 34 HARV. J.L. & PUB. POL’Y 171, 211 (2011) (“[I]n a perfectly competitive, nonnetworked industry, where incumbents are charging a price equal to marginal cost . . . [,] entrants are forced to suffer initial losses, compete on nonprice dimensions, or improve production efficiency.”).

⁴⁶ The Government alleged a predatory-pricing scheme in its case against Microsoft. Plaintiffs’ Joint Proposed Findings of Fact at 514, *United States v. Microsoft Corp.*, 87 F. Supp. 2d 30 (D.D.C. 2000) (Civ. Nos. 98-1232, 98-1233 (TPJ)) (“Microsoft set a zero price for its browser for the purpose of depriving Netscape of revenue and protecting its operating system monopoly.”).

⁴⁷ See, e.g., *Wallace*, 467 F.3d at 1106 (describing this three-stage process of a predatory-pricing scheme).

⁴⁸ See, e.g., Michal S. Gal & Daniel Rubinfeld, *The Hidden Costs of Free Goods: Implications for Antitrust Enforcement* 3 (N.Y. Univ. Law & Econ. Working Paper No. 14-44, 2015), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2529425 [<http://perma.cc/X77H-RU9J>] (“The negative effects of the short-term provision of free goods by a monopolist have been recognized and are restricted under the predatory pricing prohibition, based on a two-stage strategy in which the price is raised and initial losses recouped once the threat of entry or expansion is lifted.”).

A. *The Statutory Standard: “Trade” or “Commerce”*

The Sherman Act, by its terms, applies only to “trade or commerce.”⁴⁹ The Clayton Act generally applies to “commerce.”⁵⁰ Throughout the century-plus span of its history, antitrust jurisprudence has repeatedly recognized that Congress, in so drafting the antitrust laws, intended to cut a wide path.⁵¹ Application was to be as comprehensive as possible. In 1944, the Supreme Court stated that “[o]n its face [the Sherman Act] shows a carefully studied attempt to bring within the Act every person engaged in business whose activities might restrain or monopolize commercial intercourse among the states.”⁵² The same Court also observed “[t]hat Congress wanted to go to the utmost extent of its Constitutional power in restraining trust and monopoly agreements . . . admits of little, if any, doubt.”⁵³ Thus, the scope of antitrust “trade or commerce” can be seen as coextensive with the scope of Congress’s power under the Commerce Clause—and the latter has an extraordinarily broad scope.⁵⁴ Echoing these sentiments in 1975, the Court held that the practice of law involves “trade or commerce” under the Sherman Act, stating that “Congress intended to strike as broadly as it could in § 1 of the Sherman Act.”⁵⁵

Clearly, the scope of U.S. antitrust law is broad. Precisely defining “trade” and “commerce” is no simple task, but the Court has helpfully phrased antitrust law’s focus as “commercial competition in the marketing of goods or services.”⁵⁶ More recently, in a 2012 ruling involving an antitrust challenge to certain NCAA bylaws, the Seventh Circuit approvingly quoted the leading antitrust treatise: “[T]he Sherman Act applies to commercial

⁴⁹ See 15 U.S.C. § 1 (2012) (prohibiting restraints “of trade or commerce”); *id.* § 2 (banning monopolization or attempted monopolization of “any part of . . . trade or commerce”).

⁵⁰ See, e.g., *id.* § 18 (prohibiting mergers and acquisitions that may substantially lessen competition “in any line of commerce or in any activity affecting commerce”).

⁵¹ For a particularly comprehensive survey of the common law history underlying the meaning of “trade,” see *United States v. Am. Med. Ass’n*, 110 F.2d 703, 707-11 (D.C. Cir. 1940).

⁵² *United States v. Se. Underwriters Ass’n*, 322 U.S. 533, 553 (1944), *superseded by statute*, McCarran–Ferguson Act, 15 U.S.C. §§ 1011–1015 (2012) (clarifying that the insurance industry generally does not fall within the Sherman Act’s ambit), *as recognized in* *Barnett Bank of Marion Cnty. v. Nelson*, 517 U.S. 25, 40 (1996).

⁵³ *Id.* at 558.

⁵⁴ See, e.g., *Wickard v. Filburn*, 317 U.S. 111, 127-29 (1942) (holding that the federal government can regulate a farmer’s consumption of homegrown wheat under the Commerce Clause because in the aggregate such consumption had a substantial effect on interstate commerce).

⁵⁵ *Goldfarb v. Va. State Bar*, 421 U.S. 773, 787 (1975).

⁵⁶ *Apex Hosiery Co. v. Leader*, 310 U.S. 469, 495 (1940).

transactions, and the modern definition of commerce includes ‘almost every activity from which [an] actor anticipates economic gain.’⁵⁷

This understanding—that antitrust laws apply to transactions from which actors anticipate economic gain—accords with the intent of Congress as elucidated by the Supreme Court. Such transactions necessarily involve an exchange, the foundation of economic “gains from trade.”⁵⁸ An actor gives up something that is of less value to her than the consideration she acquires from her trading counterpart. Her counterpart, meanwhile, values what he acquires more than what he trades away. For each party, the benefits outweigh the costs. Each side is made better off by the trade.⁵⁹ This behavior is what is contemplated when antitrust courts, enforcement agencies, and commentators refer to “markets,” or in the statutory parlance, “trade” and “commerce.”

B. *The Counterargument: No Prices, No Welfare Harms*

Courts, enforcers, and theorists have concluded that without prices, there can be no welfare harms of the type that antitrust law seeks to prevent. In zero-price contexts, the argument runs, customers do not pay anything in exchange because the relevant products are “free.” As a result, there can be no monopoly overcharges, and there is no need for antitrust scrutiny. The following discussion gives a flavor of this argument.

United States legal precedent contains 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. And (although generally beyond the scope of this Article) the European Union’s (EU) top regulator has similarly concluded that competition law does not apply to “free markets.”⁶⁰

⁵⁷ *Agnew v. NCAA*, 683 F.3d 328, 340 (7th Cir. 2012) (alteration in original) (quoting 1A PHILLIP E. AREEDA & HERBERT HOVENKAMP, *ANTITRUST LAW: AN ANALYSIS OF ANTITRUST PRINCIPLES AND THEIR APPLICATION* ¶ 260b (2d ed. 2000)).

⁵⁸ See, e.g., Mark A. Lemley, *The Economics of Improvement in Intellectual Property Law*, 75 TEX. L. REV. 989, 1055 (1997) (“In the Coasean world, two parties may be expected to agree if there is a surplus to be gained from the agreement.”).

⁵⁹ This fundamental insight paved the way for the concept of comparative advantage, as thus described by Adam Smith: “The tailor does not attempt to make his own shoes, but buys them of the shoemaker. The shoemaker does not attempt to make his own clothes, but employs a tailor. . . . [Each] of them find[s] it for their interest to employ their whole industry in a way in which they have some advantage over their neighbors” ADAM SMITH, *THE WEALTH OF NATIONS* pt. 2, at 161-62 (P.F. Collier & Son 1902) (1776).

⁶⁰ See Miguel Sousa Ferro, “*Ceci N’est Pas un Marché*”: *Gratuity and Competition Law*, REVUE DES DROITS DE LA CONCURRENCES, Feb. 2015, at 1, 7-10 (Fr.) (collecting cases relating to competition

In *Stephen Jay Photography, Ltd. v. Olan Mills, Inc.*, the plaintiffs (small regional photographers) alleged that the defendants (large national photographers) provided high school yearbook photographs to students free of charge, but anticompetitively tied the sale of individual portraits to the “free” yearbook photos.⁶¹ “The district court, relying on an affidavit which stated that in all cases the yearbook photographs were provided at no charge . . . , dismissed the claim, holding that a ‘tying arrangement cannot exist when the tying product is not sold to the consumer, but is provided free of charge.’”⁶²

More recently, in *Kinderstart.com, LLC v. Google, Inc.*,⁶³ a U.S. district court took an even stronger position. The plaintiff, KinderStart, operated a childcare-focused website.⁶⁴ In its complaint, KinderStart alleged that search giant Google anticompetitively manipulated search results in a scheme to monopolize the “Search Market.”⁶⁵ En route to dismissing the plaintiff’s claim, the district court reasoned that KinderStart “failed to allege that the Search Market is a ‘grouping of sales.’ It does not claim that Google *sells* its search services, or that any other search provider does so.”⁶⁶ The court further observed that “KinderStart cites no authority indicating that antitrust law concerns itself with competition in the provision of *free services*.”⁶⁷

Scholars and enforcers have voiced similar views. In 2012, Robert Bork—whose impact on the development of modern U.S. antitrust law remains immense—wrote a passionate editorial addressing then-ongoing investigations of search provider Google by U.S. and EU enforcement

law in several EU industries including television, radio, print media, and internet); Christian Kersting & Sebastian Dworschak, *Does Google Hold a Dominant Market Position?—Addressing the (Minor) Significance of High Online User Shares 2* (Julia Holtz trans., 2014), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2495300 [<http://perma.cc/TR7C-9YLT>] (“[R]egulatory precedent to-date has dismissed the existence of ‘markets’ for competition law purposes where the products or services at issue are provided for free.” (translating Christian Kersting & Sebastian Dworschak, *Google als Marktbeherrscher?—Zur (Geringen) Aussagekraft Hoher Nutzerzahlen im Internet*, IFO SCHNELLDIENST, Aug. 2014, at 7, 7 (Ger.))).

⁶¹ 713 F. Supp. 937, 938–40 (E.D. Va. 1989), *aff’d*, 903 F.2d 988 (4th Cir. 1990).

⁶² *Stephen Jay Photography, Ltd. v. Olan Mills, Inc.*, 903 F.2d 988, 991 (4th Cir. 1990). The appellate court apparently accepted this line of reasoning, although it did add the more sensible proposition that “[b]ecause the students had the option to purchase portraits and their decision whether to purchase had no effect on their yearbook photographs, the relationship here did not constitute a tying arrangement.” *Id.*

⁶³ No. C 06-2057 JF(RS), 2007 WL 831806 (N.D. Cal. Mar. 16, 2007).

⁶⁴ *Id.* at *1.

⁶⁵ *Id.* at *4.

⁶⁶ *Id.* at *5 (emphasis added).

⁶⁷ *Id.* (emphasis added). It is possible that, had KinderStart alleged a two-sided market comprising both search results and all Internet advertising, the court would have allowed the claim to proceed. *See id.* at *6 (“KinderStart might have argued that the Search Market and the Search Ad Market combine to form one market for antitrust purposes.”).

agencies.⁶⁸ The editorial states that “[r]egulators may attempt to develop . . . antitrust complaints against the search engines but they are unsupportable. There is no coherent case for monopolization because a search engine, like Google, is *free to consumers*.”⁶⁹

Joshua Wright, former Federal Trade Commissioner, and Geoffrey Manne, Director of the International Center for Law & Economics, have made this claim as well. Wright and Manne responded to a *Wall Street Journal* column that had claimed Internet monopolies may harm consumers: “[I]t’s really hard to see the above-marginal-cost pricing in these [online] markets. From the point of view of the buyers . . . , these monopolists are really pathetic at extracting profits, as most of them *give away their products for free*”⁷⁰ Discussing social networking services, Catherine Tucker and Alexander Marthews similarly posit that “it is not clear that so far [these services’] extraordinary growth has created an antitrust issue. . . . [C]onsumers *do not pay* for using these services on most social networking sites.”⁷¹ They go on to observe that “users almost always experience social networking sites for *free*.”⁷² And in the international arena, at least one scholar makes the claim that EU competition law does not apply absent prices.⁷³

Even those who advocate some antitrust oversight of firms offering zero-price products have made claims along these lines. Nathan Newman, for example, urges antitrust and competition-law oversight of Google, yet states, “[H]ere’s the key place to start in understanding proper technology policy for Google: there is *no market* for search engines; there is *no market* for online geolocation mapping software; there is *no market* for online video. Google, *by making these products free*, has destroyed those markets”⁷⁴

Tying these various entities’ arguments together is a common thread: the idea that zero-price products are *free* to customers. If that premise were true, then customers would not exchange anything for zero-price products.

⁶⁸ Robert H. Bork, Opinion, *Antitrust and Google*, CHI. TRIB., Apr. 6, 2012, http://articles.chicago.tribune.com/2012-04-06/opinion/ct-perspec-0405-bork-20120406_1_unpaid-search-results-search-engines-search-algorithms [<http://perma.cc/XRB2-W4JE>].

⁶⁹ *Id.* (emphasis added).

⁷⁰ Geoffrey Manne & Joshua Wright, *What’s an Internet Monopolist? A Reply to Professor Wu*, TRUTH ON MKT. (Nov. 22, 2010), <http://truthonthemarket.com/2010/11/22/whats-an-internet-monopolist-a-reply-to-professor-wu/> [<http://perma.cc/L4UF-UC7K>] (emphasis added).

⁷¹ Catherine Tucker & Alexander Marthews, *Social Networks, Advertising, and Antitrust*, 19 GEO. MASON L. REV. 1211, 1211 (2012) (emphasis added).

⁷² *Id.* at 1227.

⁷³ See Ferro, *supra* note 60, at 11 (“[T]he ‘costs’ of using these services are virtually imperceptible to users. They often do not perceive them as cost or remuneration.”).

⁷⁴ Nathan Newman, *You’re Not Google’s Customer—You’re the Product: Antitrust in a Web 2.0 World*, HUFFINGTON POST (Mar. 29, 2011, 9:51 AM), http://www.huffingtonpost.com/nathan-newman/youre-not-googles-custome_b_841599.html [<http://perma.cc/9B6X-B4ES>] (last emphasis added).

Without a two-way exchange, the economic gains from trade referred to above cannot accrue.⁷⁵ There is no “trade” or “commerce” under the meaning of the Sherman and Clayton Acts. As a result, the antitrust laws would not apply.

C. *A Taxonomy of Costs*

Whether antitrust markets can exist in the absence of positive prices depends on whether customers—though they do not exchange money—exchange *something* for zero-price goods or services. Put another way, the question is whether customers incur the type of costs that double as media of exchange. The courts, enforcers, and theorists discussed above summarily conclude that customers do not incur such costs.⁷⁶ Their argument is that because zero-price products are “free” to customers, zero-price transactions do not qualify as “trade” or “commerce” under the Sherman and Clayton Acts.

That conclusion is wrong. Customers in zero-price transactions may incur multiple types of costs. As with any other marketplace transactions, some of the costs incurred are not tied to exchanges. These costs are “non-market-signaling”: they do not necessarily signal the presence of “trade” or “commerce” for antitrust purposes. The crucial point is that some of the costs incurred *are* exchanged and play the same role that money plays in positive-price markets—these costs are “market-signaling.”

1. Non-Market-Signaling Costs

Some types of costs do not necessarily signal the presence of antitrust markets. These costs cannot be the subject of exchanges. Opportunity costs are a clear example. Every decision entails opportunity costs—the costs of not pursuing the potential alternatives.⁷⁷ Opportunity costs are unilaterally absorbed by the party incurring them; they are not exchanged as part of a transaction. A finalized transaction will properly reflect each party’s opportunity costs, at least assuming the parties accounted for such costs in bargaining. But the lost opportunities are not actually exchanged. Consequently, they do not necessarily signal an antitrust market. A professor, sitting alone in her office, may decide to devote an hour to scholarship instead of class preparation.

⁷⁵ See *supra* notes 58–59 and accompanying text.

⁷⁶ See *supra* notes 69–74 and accompanying text.

⁷⁷ See R. H. Coase, *Business Organization and the Accountant* (“The cost of doing anything consists of the receipts which could have been obtained if that particular decision had not been taken.”), in L.S.E. *ESSAYS ON COST* 95, 108 (James M. Buchanan & G. F. Thirlby eds., 1973).

She has incurred an opportunity cost (the lost chance to prepare for class) but has not engaged in market activity, for there has been no exchange.⁷⁸

External costs are another example. External costs are created by one individual or firm but borne by a third party.⁷⁹ Like opportunity costs, they can be created unilaterally—every driver who has tossed a piece of garbage out a car window has imposed external costs on someone. Again, there has been no exchange; there is no “market” comprising this type of behavior.⁸⁰

2. Market-Signaling Costs

Certain types of costs *necessarily* signal the presence of “trade” or “commerce”—i.e., markets—thereby signaling that antitrust scrutiny may be appropriate. What distinguishes these costs from the non-market-signaling costs discussed above is that they function as the media of exchange. They allow parties to enter into “commercial” transactions seeking “economic gain”⁸¹ from trade. Market-signaling costs place the attendant behavior within the statutory scope of the antitrust laws.

a. *Exchanged Monetary Costs*

What this Article refers to as “exchanged monetary cost” is the quintessential example of a market-signaling cost. “Exchanged monetary cost” describes the cost to a trade partner of losing ownership of the money that that partner *exchanges* (i.e., pays) to her counter-partner in return for the product she seeks. If a customer surrenders \$1 to a merchant in exchange for one widget, the exchanged monetary cost incurred by that customer is \$1.

Not all monetary costs are market-signaling. To continue the example, suppose the merchant had previously made unrecoverable capital expenditures in order to acquire retail space and to advertise its widgets.⁸² And suppose

⁷⁸ Opportunity costs also arise in the context of marketplace activity, but they do not arise *exclusively* in that context.

⁷⁹ See, e.g., Rune Elvik, *The External Costs of Traffic Injury: Definition, Estimation, and Possibilities for Internalization*, 26 ACCIDENT ANALYSIS & PREVENTION 719, 719 (1994) (“[E]xternal costs are defined as any adverse effects of production or consumption that are not included in the utility function of the producer or consumer.” (emphasis omitted)).

⁸⁰ As with opportunity costs, external costs may—but do not exclusively—arise in the context of marketplace activity.

⁸¹ See *supra* notes 58–59 and accompanying text.

⁸² See, e.g., John Sutton, *Endogenous Sunk Costs and the Structure of Advertising Intensive Industries*, 33 EUR. ECON. REV. 335, 336–38 (1989) (describing the impact that increased advertising expenditures have on a company’s sales).

further that the customer must pay for transportation to the widget store.⁸³ For both the merchant and the customer, these sunk costs are monetary costs, and they are related to the ultimate transaction (should one occur). But they are not *exchanged*, so they are not necessarily market-signaling costs. If the merchant pays for retail space and advertising, but no customers buy any of the merchant's widgets, there is no "trade," no "commerce"—no market. The same is true if a customer drives to the store but does not ultimately make a purchase. It is only the exchanged monetary costs that necessarily signal marketplace behavior of the type with which the antitrust laws are concerned.

b. *Exchanged Information and Attention Costs*

For zero-price markets to fall within the statutory purview of antitrust law, customers must incur some type of exchanged—i.e., market-signaling—costs in order to acquire the products they seek. Exchanged monetary costs are the quintessential market-signaling costs, but customers in zero-price markets do not incur exchanged monetary costs. To the courts, enforcers, and theorists quoted above,⁸⁴ the analysis stops there. Without prices, there can be no antitrust markets, because customers do not exchange anything for "free" products.⁸⁵ Demonstrating that this view is wrong—that zero-price markets *are* markets—requires identifying some costs incurred by zero-price-market customers that are structurally analogous to the monetary costs embodied by prices. Put another way, it requires identifying "exchanged nonmonetary costs." Zero-price markets feature at least two types of exchanged nonmonetary costs: *information* and *attention* costs.

i. Information Costs

"Today's currency is data"⁸⁶

⁸³ For a general discussion of sunk costs, see DAVID D. FRIEDMAN, *PRICE THEORY: AN INTERMEDIATE TEXT* (1990).

⁸⁴ See *supra* notes 60–74 and accompanying text.

⁸⁵ Hoofnagle & Whittington, *supra* note 2, apply a transaction-cost-economics approach to conclude that "free" transactions often impose transaction costs (e.g., post-transaction monitoring of firms' behavior regarding personal information) on consumers. *Id.* at 624–25. The emphasis in this Article, however, is on the presence of *exchange*, which allows a more traditional economic analysis.

⁸⁶ Edward Wyatt, *Raising the F.T.C.'s Voice, Softly*, N.Y. TIMES, Dec. 22, 2014, at B1 (quoting Federal Trade Commission (FTC) Chairwoman Edith Ramirez); see also Allen P. Grunes & Maurice E. Stucke, *No Mistake About It: The Important Role of Antitrust in the Era of Big Data*, ANTITRUST SOURCE, Apr. 2015, at 1, 2–3 (quoting Chairwoman Ramirez for a similar point and stating that "many online companies have adopted business models that rely on personal data as a key input").

Zero-price business models often—particularly often in digital-focused industries⁸⁷—depend heavily on customer information. The very same innovations that created the platforms necessary for online commerce also created (or drastically enhanced) the ability of firms to gather and transfer customer information.⁸⁸ Information gathering and trading is not unique to Internet firms, however. Many brick-and-mortar retailers (e.g., grocery stores) also engage in widespread information gathering.⁸⁹

In zero-price markets, customer information can serve multiple functions. It can inform procompetitive behavior; it can also enable anticompetitive exclusionary practices.⁹⁰ It can be the source of indirect network externalities, which in turn can cause a market to tip in favor of a dominant firm.⁹¹ And information can be a valuable and tradable good: it can be sold to (or used by) firms that wish to use it strategically, integrated as an input to production, or used to target certain customers with advertisements.⁹²

But—and this is the crucial point—information can also be surrendered (i.e., paid) by customers in exchange for the object sought. What the antitrust enterprise has failed to recognize is that information costs may be *market-signaling*. Along with attention costs, discussed below, information

⁸⁷ See Howard A. Shelanski, *Information, Innovation, and Competition Policy for the Internet*, 161 U. PA. L. REV. 1663, 1678 (2013) (“While customer information is perhaps always valuable for a business, it is even more so for digital platforms. There are two main reasons for this: (1) digital platforms generally have much greater access than conventional businesses to a broad range of information about their consumers, and (2) digital businesses may be better able to process and use that data for a variety of purposes.”).

⁸⁸ See Jeevan Jaisingh et al., *Privacy and Pricing Personal Information*, 187 EUR. J. OPERATIONAL RES. 857, 857 (2008) (“The technological developments that have made e-commerce possible have also enhanced the ability of companies to collect, store, transfer, and analyze vast amounts of data, from and about the consumers who visit their store on the World Wide Web.”); see also LAWRENCE LESSIG, *CODE AND OTHER LAWS OF CYBERSPACE* 39 (1999) (“The significance of the recent birth of e-commerce is that it takes place on an open, unsecured network.”); Roland T. Rust et al., *The Customer Economics of Internet Privacy*, 30 J. ACAD. MARKETING SCI. 455, 456 (2002) (“[W]hile the costs of obtaining and processing information about consumers are decreasing with the advances in technology, the value of consumer information for businesses has been increasing.”).

⁸⁹ See Jaisingh et al., *supra* note 88, at 858 (describing the methods grocery stores use to collect and use a consumer’s information).

⁹⁰ See Shelanski, *supra* note 87, at 1680-81 (“When customer information is a useful input for a platform and is not equally available to that platform’s competitors, the informational advantage can help to entrench market power.”).

⁹¹ See generally, e.g., Cédric Argenton & Jens Prüfer, *Search Engine Competition with Network Externalities*, 8 J. COMPETITION L. & ECON. 73 (2012) (arguing that users of Internet search engines do not account for the fact that search providers will—by virtue of the use—acquire private information that can then be used to increase the quality of future searches, thus creating indirect network externalities on the user side of the market).

⁹² Shelanski, *supra* note 87, at 1682. The potential users of such information could include the firm that extracted the information in the first place.

costs are one of the primary media of exchange that underlie sustainable business models featuring products offered at zero prices.⁹³

Customers frequently surrender information as payment in exchange for access to zero-price products like webmail, search, social networking, and creative-content services. This personal information serves as a form of currency, taking the place of money.⁹⁴ As FTC Chairwoman Edith Ramirez observed, “Today’s currency is data.”⁹⁵ As do exchanged monetary costs in positive-price markets,⁹⁶ information costs represent a cost to customers and also to the media of exchange allowing the transaction to occur.⁹⁷

Firms facilitate voluntary information disclosure by providing incentives to customers.⁹⁸ Where the benefits offered exceed the total costs to the customer—including the costs of surrendering the information sought—a rational customer will surrender the requested information.⁹⁹ A majority of respondents to a 2014 survey stated that they were “willing to share some information about themselves with companies in order to use online services for free.”¹⁰⁰ Marketplace behavior bears out this survey research: “[M]ost consumers have shown that they are willing to release personal information if they can profit by doing so.”¹⁰¹

⁹³ See *infra* subsection II.C.2.b.ii. (identifying attention costs as exchanged nonmonetary costs).

⁹⁴ See Cotton Delo, *Here’s My Personal Data, Marketers. What Do I Get for It?*, ADVERT. AGE (Nov. 28, 2011), <http://adage.com/article/digital/web-data-startups-bank-consumers-controlling-data/231208/> [<http://perma.cc/SDB5-GKYU>] (“In a vast, minimally policed web where people are increasingly mindful about whom to trust with their information, personal data is being pointed to as the currency of the 21st century.”); see also David Zax, *Is Personal Data the New Currency?*, MIT TECH. REV. (Nov. 30, 2011), <http://www.technologyreview.com/view/426235/is-personal-data-the-new-currency/> [<http://perma.cc/KNW4-EWEY>] (“[Consumers] should control their personal data, which is ‘being pointed to as the currency of the 21st century.’”).

⁹⁵ Wyatt, *supra* note 86, at B2.

⁹⁶ See *supra* notes 56–59 and accompanying text.

⁹⁷ Hoofnagle & Whittington, *supra* note 2, at 625 (“To provide . . . information to the firm in exchange for a free product or service is to engage in trade, even if the trade occurs without a price.”).

⁹⁸ See Ee-Cheah Tam et. al., *What Do They Want? Motivating Consumers to Disclose Personal Information to Internet Businesses*, 23 INT’L CONF. ON INFO. SYSTEMS 11, 12 (2002) (“The ability of Internet businesses to address privacy concerns should be critical in their attempts to elicit consumer information. However, to facilitate voluntary information disclosure, an equally important (but often neglected) issue is the provision of incentives to consumers.”).

⁹⁹ See *id.* (“Studies have shown that when given certain tangible or intangible benefits, consumers were willing to . . . allow their personal information to be used by businesses.”).

¹⁰⁰ MARY MADDEN, PEW RESEARCH CTR., PUBLIC PERCEPTIONS OF PRIVACY AND SECURITY IN THE POST-SNOWDEN ERA 38 (2014), http://www.pewinternet.org/files/2014/11/PL_Public_PerceptionsofPrivacy_111214.pdf [<http://perma.cc/2EFM-VGXP>]; see also *id.* (noting, for example, that “55% [of those surveyed] ‘agree’ or ‘strongly agree’ that they are willing to share some information about [themselves] with companies in order to use online services for free”).

¹⁰¹ John Hagel III & Jeffrey F. Rayport, *The Coming Battle for Customer Information*, HARV. BUS. REV., Jan.–Feb. 1997, at 53, 55.

Courts outside the antitrust context have recognized this dynamic. In a breach of contract action, the promisee's surrender of personal information can constitute consideration for a promise. In *Gottlieb v. Tropicana Hotel & Casino*, for instance, Ms. Gottlieb accepted the Tropicana casino's offer to join its "Diamond Club," which entitled her to "one free spin of the Million Dollar Wheel each day."¹⁰² The casino did not charge a fee for Diamond Club membership¹⁰³—i.e., membership was a zero-price product. The application process did, however, require applicants to submit their personal information to the casino.¹⁰⁴ The information was then tied to a Diamond Club card, which members swiped before playing casino games.¹⁰⁵ "The casino's marketing department . . . use[d] that information to tailor its promotions."¹⁰⁶ Allegedly, Ms. Gottlieb then swiped her card and spun the Million Dollar Wheel, which landed on the "\$1 million grand prize."¹⁰⁷ The casino refused to pay, arguing that its promise to do so was not supported by consideration—that Ms. Gottlieb did not exchange anything for the promise.¹⁰⁸ Rejecting this defense, the court observed that

[b]y . . . allowing [her card] to be swiped into the casino's machine, [Ms. Gottlieb] was permitting the casino to gather information about her gambling habits. . . . [T]hese detriments to Ms. Gottlieb were "the requested detriment[s] to the promisee induced by the promise" of Tropicana to offer her a chance to win \$1 million. Tropicana's motives in offering the promotion were "in nowise altruistic." . . . In short, Ms. Gottlieb provided adequate consideration to form a contract with Tropicana.¹⁰⁹

The *Gottlieb* court rightly recognized that a mutual exchange had taken place between Ms. Gottlieb and the casino, such that an enforceable contract was formed. The information cost functioned as consideration—it signaled the presence of a bargained-for exchange.¹¹⁰ The fact that Ms. Gottlieb exchanged her personal information instead of money was of no moment.

Where a customer voluntarily exchanges personal information for a zero-price product, the resulting gains from trade leave both parties better

¹⁰² 109 F. Supp. 2d 324, 327 (E.D. Pa. 2000).

¹⁰³ *Id.*

¹⁰⁴ *Id.*

¹⁰⁵ *Id.*

¹⁰⁶ *Id.*

¹⁰⁷ *Id.*

¹⁰⁸ *Id.*

¹⁰⁹ *Id.* at 329-30 (alteration in original) (citations omitted).

¹¹⁰ See JOSEPH M. PERILLO, CALAMARI AND PERILLO ON CONTRACTS § 4.2 (6th ed. 2009) (stating that where the elements of consideration are present, there is a "bargained-for exchange," a binding transaction).

off. These are the sorts of “economic” gains that accrue only from marketplace behavior.¹¹¹ Transactions where information serves as currency are “trade” or “commerce” under the meaning of the antitrust laws.¹¹² And, absent some compelling reason to conclude otherwise, the default and correct position is that the antitrust laws apply to zero-price markets.

ii. Attention Costs

*“If I’m giving you something of value at no cost, I will charge you with your time, not your money”*¹¹³

Despite its vital role in the modern marketplace, customer attention remains relatively unexamined.¹¹⁴ Customer attention to advertisements has driven much of the rise to prominence of zero-price markets.¹¹⁵ This is most obviously the case with regard to two-sided, ad-supported products. It is also true of hybrid business models; the zero-price version of the product in such markets includes advertisements, and paid versions often also include (relatively fewer) advertisements.¹¹⁶ Additionally, freemium (and complementary-goods) business models often also rely on internal advertisements (i.e., advertisements featuring products offered by the supplier itself).¹¹⁷ When they appeared, freemium services represented an advance over take-it-or-leave-it products that forced consumers into a Hobson’s choice: either use the service and view the advertisements or do not use the service at all.¹¹⁸ Freemium offers a more

¹¹¹ See *supra* notes 58–59 and accompanying text.

¹¹² See *supra* notes 56–59 and accompanying text.

¹¹³ Saul Hansell, *Web Site Ads, Holding Sway, Start to Blare*, N.Y. TIMES, Mar. 17, 2001, at A1 (quoting Scott Kurnit, then-Chief Internet Officer of Primedia).

¹¹⁴ See Tom Chatfield, *The Attention Economy*, AEON (Oct. 7, 2013), <http://aeon.co/magazine/world-views/does-each-click-of-attention-cost-a-bit-of-ourselves/> [<http://perma.cc/48BD-WVT3>] (“For all the sophistication of a world in which most of our waking hours are spent consuming or interacting with media, we have scarcely advanced in our understanding of what attention means.”).

¹¹⁵ See, e.g., Han, *supra* note 23 (“These two-sided platforms are becoming the major business strategy in the mobile app market.”).

¹¹⁶ See *supra* notes 38–39 and accompanying text.

¹¹⁷ In freemium and complementary-goods contexts, profits may depend on using the zero-price product to increase sales of the positive-price product. Firms need to somehow make their zero-price customers aware of the latter. The advertisements firms use to do this may be less overt than the third-party ads featured in many two-sided platform or freemium markets—but they are advertisements, nonetheless.

¹¹⁸ See Brad J. Sagarin et al., *Bartering Our Attention: The Distraction and Persuasion Effects of On-Line Advertisements*, COGNITIVE TECH., Fall 2003, at 4, 4 (“Traditional ad-sponsored media provide consumers with two options: attend to the content and accept the advertisements, or reject the content and avoid the advertisements. However, recent technological advances have enabled marketers to offer consumers more sophisticated choices.”).

sophisticated choice: “[C]onsumers can make individual decisions to pay money for a product or service or to barter their attention for an ad-sponsored version.”¹¹⁹

To customers, advertisements carry both costs and (potentially) benefits. The putative benefits can arise where advertising conveys product information that is helpful in making consumption decisions.¹²⁰ (Critics of advertising paint a different picture, arguing that advertising seeks to *persuade*, not inform, and that it changes consumer preferences in suboptimal ways.¹²¹) The costs arise because “advertisements take time” to watch, view, or hear.¹²² For the customers they target, advertisements are a “nuisance.”¹²³ The attention expended in order to obtain the desired product is incurred as a cost—an “attention cost.”

Advertisements may be unsolicited. Though exact definitions vary, advertisements are generally considered “unsolicited” where they are transmitted to a person without that person’s invitation or permission.¹²⁴ Common examples include email spam, junk faxes, and telemarketing calls.¹²⁵ Attention costs paid to unsolicited advertisements are often extremely frustrating to their targets, who perceive that they have not obtained anything of value in exchange for their expenditure.¹²⁶ Unsolicited advertisements impose costs but often yield no (or incommensurate) benefits.¹²⁷ Though less offensive than the examples given above, advertisements that are “given away, as those in . . . billboard advertisements”¹²⁸ may also be considered unsolicited for present purposes.

As to unsolicited advertisements, attention costs are non-market-signaling. The individuals who incur the costs are not exchanging their attention for something of value. Without an exchange, there cannot accrue economic gains from trade.¹²⁹ Consequently, for purposes of the antitrust laws, these

¹¹⁹ *Id.*

¹²⁰ See, e.g., Simon P. Anderson & Stephen Coate, *Market Provision of Public Goods: The Case of Broadcasting* 3 (Nat’l Bureau of Econ. Research, Working Paper No. 7513, 2000) (“The benefits are that advertising allows producers to inform consumers about new products, facilitating the consummation of mutually beneficial trades.”).

¹²¹ *Id.* at 3 n.3 (“Under this *persuasive* view, advertisements can directly alter consumers’ tastes for a product.”).

¹²² *Id.* at 1.

¹²³ *Id.* at 3.

¹²⁴ See, e.g., 47 U.S.C. § 227(a)(4) (2012) (defining “telephone solicitation” to exclude calls or messages to any person made following that person’s “prior express invitation or permission”).

¹²⁵ Dannielle Cisneros, *Do Not Advertise: The Current Fight Against Unsolicited Advertisements*, DUKE L. & TECH. REV., Apr. 2003, at 1, 4-6.

¹²⁶ Congress, perceiving this frustration on the part of email users, reacted by passing the CAN-SPAM Act, Pub. L. No. 108-187, 117 Stat. 2699 (codified as amended at 15 U.S.C. §§ 7702-7713 (2012)).

¹²⁷ See Cisneros, *supra* note 125, at 2-3 (noting common consumer complaints).

¹²⁸ Gary S. Becker & Kevin M. Murphy, *A Simple Theory of Advertising as a Good or Bad*, 108 Q.J. ECON. 941, 942 (1993).

¹²⁹ See *supra* notes 58-59 and accompanying text.

cost expenditures do not imply “trade” or “commerce.”¹³⁰ This is not to say that unsolicited advertisements never offer value. A billboard advertisement, for example, may provide travelers valuable information, like the location of the nearest restaurant. But a traveler does not exchange her attention for a desired product. The attention costs expended are not part of a trade or transaction.¹³¹

Advertisements may also, however, be delivered via express or implied invitation or permission. Here, customers literally *pay attention* to obtain the product delivered along with the advertisements. “Consumers receive desired content (e.g., television programming, Internet web sites) in exchange for their attention to advertisements.”¹³² The attention costs incurred are the consideration for the product sought; that product is, in turn, the consideration for the attention.¹³³ For example, broadcast television viewers—by virtue of choosing to view broadcast television—impliedly give permission to television broadcasters to subject the viewers to advertisements. Viewers do so in exchange for the content they ultimately desire.¹³⁴ In fact, one television executive went so far as to state, “Your contract with the network when you get the show is you’re going to watch the [advertising] spots. Otherwise you couldn’t get the show on an ad-supported basis. Any time you skip a commercial . . . you’re actually stealing the programming.”¹³⁵

Here again, courts outside the antitrust context have recognized this market dynamic. *Jennings v. Radio Station KSCS, 96.3 FM, Inc.*,¹³⁶ provides an example. In *Jennings*, Steve Jennings, a prisoner in Texas, faithfully listened to radio station KSCS, which promised on-air to “play at least three-in-a-row, or we pay you \$25,000.”¹³⁷ Jennings alleged that KSCS then repeatedly played only two songs in a row and that he had unsuccessfully

¹³⁰ See *supra* notes 56–59 and accompanying text.

¹³¹ Becker and Murphy seem to recognize this point, though their choice of terminology is somewhat unusual. They state that “[a]ds may be given away . . . , or they may be sold jointly with programs, newspaper articles, comics, sports pages, etc.” Becker & Murphy, *supra* note 128, at 942.

¹³² Sagarin, *supra* note 118, at 4; cf. Chatfield, *supra* note 114 (“If you’re using a free online service, the adage goes, you are the product.”).

¹³³ See Matti Leppäniemi & Heikki Karjaluoto, *Factors Influencing Consumers’ Willingness to Accept Mobile Advertising: A Conceptual Model*, 3 INT’L J. MOBILE COMM. 197, 207 (2005) (describing the Mobile Marketing Association’s Code of Conduct for mobile advertisers, which, under the item “Consideration,” requires that “consumers . . . perceive value in any mobile marketing campaign”); see also Chatfield, *supra* note 114 (“We are all amateur attention economists, hoarding and bartering our moments—or watching them slip away down the cracks of a thousand YouTube clips.”).

¹³⁴ See generally Anderson & Coate, *supra* note 120 (developing a model of broadcast markets that accounts for the “nuisance costs” to consumers created by advertisements).

¹³⁵ Sagarin et al., *supra* note 118, at 4 (alterations in original).

¹³⁶ 708 S.W.2d 60 (Tex. App. 1986).

¹³⁷ *Id.* at 61.

demanded the promised \$25,000.¹³⁸ KSCS raised a defense similar to the casino's in *Gottlieb*: because Jennings had not paid anything for access to radio programming, no consideration supported the station's promise to pay \$25,000.¹³⁹ The *Jennings* court rejected the argument, recognizing that Jennings "could have listened to *any* station, but he listened to KSCS."¹⁴⁰ KSCS, in turn, had benefited from its promise by gaining new listeners, including Jennings.¹⁴¹ Attention costs signaled the presence of an exchange—they served as consideration to uphold the bargain between the prisoner and the radio station.¹⁴²

For consumers in many zero-price markets, money is replaced by attention—these consumers literally *pay attention*. Where advertisements are solicited, consumers exchange their attention to advertisements for corresponding products.¹⁴³ And because such attention costs are also the media of exchange, such transactions allow for economic gains from trade.¹⁴⁴ These attention costs are market-signaling. Transactions where attention serves as currency are "trade" or "commerce" under the meaning of the antitrust laws.¹⁴⁵

c. *Zero-Price Products Are Not "Free"*

Zero-price markets are "markets" for purposes of the antitrust laws. Though no price is attached to products distributed in zero-price markets, they are not "free" to customers.¹⁴⁶ There are always costs. Though the Internet lowered distribution costs for many products, for-profit firms must still recoup their production costs (as well as any distribution costs that remain).¹⁴⁷ Firms do so by imposing costs on customers. And some of the costs incurred in zero-price markets are market-signaling—they are both a

¹³⁸ *Id.*

¹³⁹ *Id.*

¹⁴⁰ *Id.* at 61-62.

¹⁴¹ *Id.* at 62.

¹⁴² See *supra* note 110 and accompanying text.

¹⁴³ Cf., e.g., *Ultramercial, LLC v. Hulu, LLC*, 657 F.3d 1323, 1324 (Fed. Cir. 2011) ("The '545 patent claims a method for distributing copyrighted products (e.g., songs, movies, books) over the Internet where the consumer receives a copyrighted product for free in exchange for viewing an advertisement . . .").

¹⁴⁴ See *supra* notes 58-59 and accompanying text.

¹⁴⁵ See *supra* notes 58-59 and accompanying text.

¹⁴⁶ Professor Friedman recognizes a somewhat similar point in the context of advertisements featuring "free offers." See David Adam Friedman, *Free Offers: A New Look*, 38 N.M. L. REV. 49, 49 (2008) ("Free offers exist to lure potential customers to a specific offering, to bring them to the commercial enterprise where an offering can be presented, or to create an often-hidden psychological tie between customers and the enterprise that helps induce a sale.").

¹⁴⁷ See Hoofnagle & Whittington, *supra* note 2, at 622 ("Distribution costs for most online products may appear low but production costs are and will remain high.").

cost to customers and the consideration exchanged to suppliers. That attention and information costs can be exchanged is a point missed by those who dismiss zero-price products as “free.” The transactions made possible by the *exchange* of attention and information allow economic gains from trade. For purposes of the Sherman and Clayton Acts, these exchanges can in the aggregate qualify as “trade” or “commerce.”¹⁴⁸

Concluding that the scope of antitrust law does not extend to zero-price markets is mistaken.¹⁴⁹ In part, the errors made by the *Kinderstart.com* and *Stephen Jay* courts resulted from a misguided focus on the term “sales” in defining relevant markets. The *Kinderstart.com* court, for example, observed that the plaintiff “failed to allege . . . a ‘grouping of sales.’”¹⁵⁰ This language—“grouping of sales”—is not found in the statutory language of the antitrust laws. Using “grouping of sales” as a standard may be appropriate in markets that feature positive prices, but it is misleading in zero-price contexts because of the pecuniary connotations of “sales.” The proper focus is on whether the defendant is involved in “trade” or “commerce.”¹⁵¹ As the discussion above shows, zero-price products can satisfy this statutory standard.¹⁵²

The more fundamental error, however, is made by those who observe that zero-price products are necessarily “free” and conclude that antitrust law does not apply to their suppliers. In common usage, “free” means “[c]osting nothing.”¹⁵³ Overlooking the costs that customers often pay in exchange for zero-price products translates into bad antitrust policy by ignoring an increasingly vital sector of modern economies. Rational, for-profit firms offer products at zero prices because they have determined that doing so is profitable. Customers, having determined that the benefits outweigh the costs, enter into contracts to acquire those products from suppliers. This give-and-take is the very essence of the “trade” and “commerce” contemplated by the Sherman and Clayton Acts.

Zero-price markets present opportunities for the creation, enhancement, or abuse of market power—precisely the evils that antitrust laws are intended to remedy. That customers pay for zero-price products with information and

¹⁴⁸ See *supra* notes 49–50 and accompanying text.

¹⁴⁹ Evans agrees, speculating that some defendants may have declined to pursue this claim because no reputable economic expert would advocate for it. Evans, *Antitrust Economics*, *supra* note 1, at 72.

¹⁵⁰ *Kinderstart.com, LLC v. Google, Inc.*, No. C 06-2057 JF(RS), 2007 WL 831806, at *5 (N.D. Cal. Mar. 16, 2007).

¹⁵¹ See *supra* notes 49–50 and accompanying text.

¹⁵² See *supra* Part II.

¹⁵³ *Free*, THE AMERICAN HERITAGE COLLEGE DICTIONARY 542 (3d ed. 1993); see also LESSIG, *supra* note 8, at 12 (“A resource is ‘free’ if (1) one can use it without the permission of anyone else; or (2) the permission one needs is granted neutrally.”).

attention rather than money is irrelevant here: “The antitrust laws are concerned with maintaining competition in private markets.”¹⁵⁴ Conduct that raises costs or restricts output of zero-price products can harm welfare just as seriously as conduct that raises price or reduces output in other markets.

III. THE FUNCTION OF ZERO-PRICE MARKETS

Under the consensus view, modern antitrust law takes as its goal the protection and promotion of competition in private markets.¹⁵⁵ In a perfectly competitive market, strategic behavior that harms the competitive process and consumers will be disciplined by market forces more efficiently than by government intervention. It follows that, if markets are perfectly competitive, antitrust laws have no role to play. Even if the statutorily defined scope of the antitrust laws encompasses zero-price markets, regulatory market intervention is not necessarily appropriate.

Of course, no market in the real world achieves the idealized model of perfect competition. The degree to which zero-price markets approach—or deviate from—that ideal can, however, inform the role antitrust should play in such markets. Do firms actually compete in zero-price markets? Can market power be anticompetitively attained, exercised, or maintained? If so, how is society harmed? And how did antitrust institutions fail to account for the possibility of such harm?

A. *The Presence of Competition*

Buyer–seller exchanges in zero-price markets are structurally similar to those in markets with positive prices. Rational firms find it profitable to exchange zero-price products to customers in exchange for their attention or information. Just as in markets with positive prices, one would expect the presence of competition in zero-price markets. Absent competition, an individual supplier (or oligopoly or cartel) would be able to exact inefficiently high information or attention costs, reducing output—just as a monopolist in a positive-price market can set prices at the monopoly level, reducing output and creating a deadweight loss.¹⁵⁶ The presence of monopoly profits

¹⁵⁴ HOVENKAMP, *supra* note 12, at 13.

¹⁵⁵ *Id.* at 13-15.

¹⁵⁶ See E. THOMAS SULLIVAN ET AL., ANTITRUST LAW, POLICY, AND PROCEDURE: CASES, MATERIALS, PROBLEMS 50 (7th ed. 2014) (“The monopolist faces a downward sloping demand curve, which indicates that it can charge more by reducing output.”).

may attract entry by competitors.¹⁵⁷ Actual or threatened customer substitution in favor of competitors' products will spur a monopolist to lower costs and increase quality—in short, to compete.¹⁵⁸

Unsurprisingly, customers of zero-price products make substitution decisions based in part on attention or information costs.¹⁵⁹ The same substitution effect observed in positive-price markets (or the threat of it) spurs firms to compete for business in ways that benefit customers. Broadcast radio markets provide one compelling example of reduced competition leading to higher attention costs imposed on listeners.¹⁶⁰ Empirical analysis of programming conducted in the wake of deregulation shows that the advertising time increases as firm size increases (i.e., as market concentration increases);¹⁶¹ tellingly, the amount of time devoted to advertisements increases most sharply during times of the day when listeners have fewer ready substitutes.¹⁶² This substitution strongly suggests that, where possible, customers will substitute away from products that entail overly high attention costs. Reducing the number of competitors in the market limits customers' ability to do so.

Information costs provide a similar avenue for competition: multiple firms have launched search engines that differentiate themselves primarily on the basis of low information costs.¹⁶³ These entrants enjoyed rapid growth,¹⁶⁴ though their long-term viability is uncertain. Firms in zero-price

¹⁵⁷ See WILLIAM A. MCEACHERN, *MICROECONOMICS: A CONTEMPORARY INTRODUCTION* 229 (9th ed. 2012) (“Low barriers to entry in monopolistic competition mean that short-run economic profit attracts new entrants in the long run.”).

¹⁵⁸ See *id.* (noting that where entry is easy, “monopolistically competitive firms earn zero economic profit in the long run” (emphasis omitted)).

¹⁵⁹ They also consider—perhaps even primarily—attributes like quality. See Maurice E. Stucke & Ariel Ezrachi, *When Competition Fails to Optimise Quality: A Look at Search Engines 2* (Univ. of Tenn. Coll. of Law Legal Studies Research Paper Series, Research Paper No. 268, 2015) (“By and large, when a product or service is offered for free, the primary dimension of competition is typically quality.”).

¹⁶⁰ See *infra* Section III.C.

¹⁶¹ See generally, e.g., Catherine Tyler Mooney, *Market Power and Audience Segmentation Drive Radio Advertising Levels* (Apr. 14, 2010) (unpublished manuscript), https://editorialexpress.com/cgi-bin/conference/download.cgi?db_name=IIOC2010&paper_id=203 [<https://perma.cc/YF98-TDGG>].

¹⁶² *Id.* at 5.

¹⁶³ See Andrew Lazaunikas, *Duck Duck Go's Impact on the Current SEO Landscape and Its Future Trajectory*, *SEARCH ENGINE JOURNAL* (July 29, 2013), <http://www.searchenginejournal.com/duck-duck-gos-impact-on-the-current-seo-landscape-and-its-future-trajectory/65446/> [<http://perma.cc/HGS5-ALR4>] (“Google, Yahoo and Bing have seen a small subset of the market diverge to other search engines with stricter privacy policies.”).

¹⁶⁴ E.g., *DuckDuckGo Direct Queries Per Day (1y Avg)*, DUCKDUCKGO, <https://duckduckgo.com/traffic.html> [<https://perma.cc/Y5LG-JSPD>] (last visited Sept. 19, 2015) (showing that DuckDuckGo received approximately 4.8 million direct queries per day in August 2014 and 9.5 million direct queries per day in August 2015).

markets compete along multiple dimensions, including the information and attention costs they impose on customers.

In light of the foregoing, it would be a mistake to conceive of zero-price markets as essentially a single, competitive market where consumer-facing differentiation is important only insofar as it allows platforms to deliver a differentiated type of consumer to advertisers or data-seekers. Evans, in analyzing attention rivalry, takes this approach by arguing that “attention seekers compete for procuring attention regardless of the products and services they offer for doing this.”¹⁶⁵ Under this conception, social media platforms, search engines, news websites, and online shopping portals are all locked in intense competition with each other for a scarce resource: users’ attention. Unsurprisingly, “attention seekers are price takers in terms of what they pay to secure attention.”¹⁶⁶

This conception overlooks the *exchange* aspect of zero-price markets discussed above. The error can be seen by transporting the analysis to the more familiar positive-price context. Automobile dealers, restaurants, clothing stores, and movie theaters are all locked in intense competition with each other for a scarce resource: consumer money. But that sort of competition does not give rise to a “strong presumption” that all “attention seekers” “are price takers.”¹⁶⁷ Evans uses the example of the social networking site Pinterest to illustrate that the rise in popularity of one online platform necessarily diverts attention from other platforms, regardless of their content.¹⁶⁸ But a similar argument can be made about any innovative new entrant; sales of a new product will almost always reduce sales of other products.¹⁶⁹ It is the closeness of substitutability that matters for antitrust analysis. Thus, for example, “when the automobile was first invented, competing auto manufacturers obviously took customers primarily from companies selling horses and buggies . . . , but that hardly shows that cars and horse-drawn carriages should be treated as the same product market.”¹⁷⁰

¹⁶⁵ Evans, *Attention Rivalry*, *supra* note 18, at 316.

¹⁶⁶ *Id.*

¹⁶⁷ *Id.*

¹⁶⁸ *See id.* at 317 (“People only have so much time. . . . To participate in this new pinning site they either spent more time online or shifted their time from other things they were doing online.”).

¹⁶⁹ It is possible that the attractiveness of the new product will attract buyers who had previously been unwilling to spend on any available products.

¹⁷⁰ *FTC v. Whole Foods Mkt., Inc.*, 548 F.3d 1028, 1048 (D.C. Cir. 2008) (Tatel, J., concurring in the judgment).

B. *The Role and Efficacy of Competition*

The proper role of competition in a modern market economy is to act as a private check on self-interested economic behavior.¹⁷¹ This function leaves all of society better off by increasing consumer welfare, maximizing efficiency and productivity, and spurring innovation, among other benefits.¹⁷² Seeking to increase sales and profits, firms are driven by their competitors to increase quality, lower costs and prices, or create entirely new and better products. Where the primary costs to customers are exchanged monetary costs, competition ensures that the buyer can choose the best possible product in exchange for the minimum possible amount of money.¹⁷³ This role is vital to the very pillars of a market economy: “The main claims for a private-enterprise system rest upon the workings of competition”¹⁷⁴

In zero-price markets, competition should ensure that customers receive the best possible zero-price products while minimizing the attention and information costs those customers must exchange for the products. How well competition serves that goal is relevant to antitrust law’s role and stance.

In the early twentieth century, economists arrived at what, more or less, remains the modern conception of the requirements for a market to be perfectly competitive. These conditions include, but are certainly not limited to, perfect rationality, perfect knowledge, zero transaction costs, low entry and exit barriers, many producers, and commoditized products.¹⁷⁵ Where these conditions are met, prices are driven down to the marginal cost of production, and firms are driven to minimize their costs.¹⁷⁶

¹⁷¹ For a basic overview, see *The Economic Lowdown Podcast Series: The Role of Self-Interest and Competition in a Market Economy*, FED. RES. BANK ST. LOUIS, http://www.stlouisfed.org/education_resources/economic-lowdown-podcast-series/the-role-of-self-interest-and-competition/ [<http://perma.cc/9WU3-KCGT>] (last visited Sept. 19, 2015).

¹⁷² For an explanation of these dynamics, see William J. Kolasky, Deputy Assistant Att’y Gen., Antitrust Div., U.S. Dep’t of Justice, Address at the TokyoAmerica Center: The Role of Competition in Promoting Dynamic Markets and Economic Growth (Nov. 12, 2002), <http://www.justice.gov/atr/public/speeches/200484.pdf> [<http://perma.cc/QS2W-QGDE>].

¹⁷³ In the long run, competition may also reduce transaction and other costs.

¹⁷⁴ George J. Stigler, *Perfect Competition, Historically Contemplated*, 65 J. POL. ECON. 1, 4 (1957).

¹⁷⁵ FRANK H. KNIGHT, RISK, UNCERTAINTY, AND PROFIT 51-93 (1921). Knight assumed lack of collusion and monopoly instead of “many producers,” *id.* at 78, which has subsequently become the more generally accepted assumption.

¹⁷⁶ See, e.g., Herbert Hovenkamp, *The Sherman Act and the Classical Theory of Competition*, 74 IOWA L. REV. 1019, 1025 (1989) (“Within the modern neoclassical model, ‘perfect competition’ describes a state of affairs in which price is driven to marginal cost and firms are forced to minimize their costs through innovation and growth to the optimal size.”).

1. Structural Deviations from Perfect Competition

Structurally, a perfectly competitive market features homogeneous products, low barriers to entry and exit, sufficient competitors (or rapid entrants), and perfect knowledge on the part of suppliers and customers. Zero-price markets often deviate from these assumptions, creating the potential for the creation, acquisition, exercise, or maintenance of market power.

Zero-price markets are relatively heterogeneous. Early antitrust enforcers targeted commoditized lines of commerce like steel, tobacco, oil, and aluminum.¹⁷⁷ This focus is unsurprising, given that such markets once dominated the broader economy.¹⁷⁸ The products offered by zero-price market participants, by comparison, tend to be differentiated—and often highly so.¹⁷⁹

It is commonplace but misguided to claim that Internet-based markets, many of which feature zero prices, uniformly exhibit low entry barriers.¹⁸⁰ As in other contexts, the type and magnitude of entry barriers in zero-price markets vary widely across different individual markets. On one end of the spectrum lie products like simple mobile applications (apps), many of which are distributed at zero prices.¹⁸¹ Barriers to entry may consist of only a few thousand dollars and a small amount of time.¹⁸² At the other end of the spectrum are more complex products that require years of time, considerable expertise, and millions of dollars to launch.¹⁸³ The barriers to launching a

¹⁷⁷ Newman, *Anticompetitive Product Design*, *supra* note 29, at 687; *see also* Richard A. Posner, *Antitrust in the New Economy*, 68 ANTITRUST L.J. 925, 926 (2001) [hereinafter Posner, *New Economy*] (listing “steel, automobiles, pipe, wire, aluminum, railroad cars, roadbuilding materials, and cigarettes” as the industries from which modern antitrust analysis arose).

¹⁷⁸ *See, e.g.*, Posner, *New Economy*, *supra* note 177, at 925 (referring to traditional markets as “smokestack industries”).

¹⁷⁹ *See, e.g.*, Kaifu Zhang & Miklos Sarvary, *Social Media Competition: Differentiation with User-Generated Content 3* (Sept. 1, 2011) (unpublished manuscript), https://marketing.wharton.upenn.edu/mktg/assets/File/Social%20Media_Kaifu%20Zhang.pdf [<https://perma.cc/SWQ9-C9DW>] (pointing to Facebook and MySpace as examples of differentiated social networks).

¹⁸⁰ *See, e.g.*, JOHN GALLAUGHER, *GETTING THE MOST OUT OF INFORMATION SYSTEMS: A MANAGER'S GUIDE TO HARNESSING TECHNOLOGY* ch. 2.3 (1st ed. 2009) (ebook) (“Some have correctly argued that the barriers to entry for many tech-centric businesses are low. This argument is particularly true for the Internet where rivals can put up a competing Web site seemingly overnight.”); *Barriers to Entry, Exit and Mobility*, ECONOMIST (July 13, 2009), <http://www.economist.com/node/14025576> [<http://perma.cc/FLK2-KD39>] (“Old ideas about barriers to entry were given a new twist with the development of e-commerce. By using the internet, firms can sometimes surmount traditional barriers with an ease not previously available.”).

¹⁸¹ *Cf.* Thomas Carter, *How Much Does It Cost to Develop an App?*, BLUECLOUDSOLUTIONS, <http://www.bluecloudsolutions.com/blog/cost-develop-app/> [<http://perma.cc/9ATT-85DZ>] (last updated Mar. 25, 2015) (noting that some simple apps can be developed for as low as \$1000).

¹⁸² *See id.* (estimating that simple mobile apps cost between \$1000 and \$4000 to develop).

¹⁸³ For example, consider comprehensive mapping systems like Google Maps. Over a period of years, Google developed Maps by compiling mapping data and satellite imagery, constructing

rival product are quite high, even if the market price for such products is set at zero.

Perfectly informed customers seeking to buy a product from firms operating in a perfectly competitive market act as a very effective check on firms' behavior. If a single firm were to attempt to raise prices above the market-clearing level, customers—perceiving the cost of that firm's product to be higher than the costs of competing products, with no corresponding increase in benefits—would simply buy from competitors.¹⁸⁴ This substitution would cause the price-increasing firm to forgo the potential profits from the lost sales, thereby disciplining its attempted price increase.¹⁸⁵ Customers thus restrain such decisions, ensuring that firms are (at least in part) incentivized to choose pro-customer strategies. This function requires that customers be able to assess and compare the relative costs and benefits of the products in the market.

Comparing costs in many positive-price markets is a straightforward exercise. In zero-price markets, however, it is no small task. Without a perfectly fungible baseline of comparison like currency, customers are left to make qualitative judgments about which product will cost the least amount of information and attention. Price information is quantitative, simple, and almost costless to gather. Nonprice cost information is qualitative, complex, and relatively costly to gather. To illustrate, assume that two zero-price services, Service *A* and Service *B*, compete in the same relevant antitrust market, and that attention costs can be measured in units called "attens." *A* and *B* are differentiated, but they feature the exact same advertisements in the same format, with each extracting ten attens per consumer. Even though the two services extract the same attention costs, that fact would not be readily apparent to consumers—there is no analogue to a "price tag" for attention (or information) costs.

In fact, customers typically must first experience relevant zero-price products to make even a qualitative assessment of the relative costs.¹⁸⁶ This

pecially outfitted camera cars, collecting over 20 petabytes (21.5 billion megabytes) of street-view imagery, integrating ratings software, and spending untold millions on building out and maintaining the infrastructure necessary to deliver the service to fixed and mobile computing devices. Leo Kelion, *Google Maps Uses Ground Truth Project to Battle Apple*, BBC NEWS (Sept. 9, 2012), <http://www.bbc.com/news/technology-19536269> [<http://perma.cc/AS9S-ACNR>].

¹⁸⁴ See SULLIVAN ET AL., *supra* note 156, at 38-39 (describing the horizontal demand curve faced by a single competitor in an undifferentiated market).

¹⁸⁵ *Id.*

¹⁸⁶ See Shelanski, *supra* note 87, at 1691 ("Digital platform services are largely 'experience' goods, the qualities and characteristics of which are difficult to assess in advance but relatively easy to judge upon actual use." (citing Phillip Nelson, *Information and Consumer Behavior*, 78 J. POL. ECON. 311, 313-14 (1970))).

“experience requirement” introduces the possibility that path dependence, rather than inherent product qualities, will drive the direction of markets.¹⁸⁷ That, in turn, at least arguably increases the likelihood of suboptimal outcomes.¹⁸⁸ At a minimum, the experience requirement increases the costs to consumers of calculating the costs of the relevant products. Perhaps as a result, customers may simply remain entirely ignorant of information costs. When consumers choose Internet-based products, Shelanski observes that their “failure to read or understand privacy policies remains a possible source of market failure.”¹⁸⁹ Reading and understanding the privacy policies of competing suppliers is an incredibly difficult task for those few customers who actually undertake it. Even many attorneys well-versed in contract law would be unable *ex ante* to draw any meaningful conclusions regarding relative information costs.¹⁹⁰

Perhaps most important, though, is the fact that not only the relevant products, but also the *costs themselves*, are generally differentiated. The example above is highly stylized—in reality, *A* and *B* will nearly always feature different advertisements in different formats. As a consequence, the relative costs will be differentiated in a way that prices cannot be. The significance of attention costs varies from advertisement to advertisement, with some particularly high-quality advertisements imposing net negative costs (i.e., benefits).¹⁹¹ Costs also vary according to the format of the

¹⁸⁷ See, e.g., CARL SHAPIRO & HAL R. VARIAN, *INFORMATION RULES: A STRATEGIC GUIDE TO THE NETWORK ECONOMY* 11 (1999) (“[U]sers of information technologies are notoriously subject to switching costs and lock-in: once you have chosen a technology, or a format for keeping information, switching can be very expensive.”). One commonly used example of an outcome due to path dependence is the standardization of railroad track width around the globe. Adoption of 1.435 meters as the standard width between rails is the result of little more than historical accident. See Douglas J. Puffert, *The Standardization of Track Gauge on North American Railways, 1830-1890*, 60 J. ECON. HIST. 933, 956 (2000) (“[I]f a few key early [1.435-meter] lines had chosen a different gauge instead, then there could have been much more diversity—and conceivably a different continental standard.”). Puffert observes that “most (but not all) railway engineers today would find a broader gauge technically and economically superior, although only to a small extent.” *Id.* at 934.

¹⁸⁸ See generally Hoofnagle & Whittington, *supra* note 2, at 642-43 (“The concept of lock-in is well understood in the industry of online products, and it dates back for several decades.”). *But cf.* S. J. Liebowitz & Stephen E. Margolis, *Path Dependence, Lock-In, and History*, 11 J. L. ECON. & ORG. 205 (1995) (arguing that the two types of path dependence that are commonplace do not depart from the standard neoclassical account, and that the third and potentially problematic type is rare in practice).

¹⁸⁹ Shelanski, *supra* note 87, at 1691.

¹⁹⁰ And even a relatively clear policy does not—and cannot—give customers the ability to track how information is actually used.

¹⁹¹ A well-constructed advertisement may create a valuable positive experience, or impart valued product information, to consumers. See, e.g., *Many Just Watch the Super Bowl for the Ads*, USA TODAY (Jan. 15, 2014, 3:52 PM), <http://www.usatoday.com/story/sports/ad-meter/super->

advertisement (such as its location and visibility).¹⁹² Information costs tend to be no less differentiated.¹⁹³

Information and attention costs are also differentiated by who bears them. Different customers experience viewing advertisements or surrendering personal information differently. To use the above example, even if *A* and *B* featured the same advertisements in the same formats, the actual net cost in attens will likely vary consumer-to-consumer. This is so because consumers exhibit differing sensitivities to attention and information costs. Consumer *Y* may experience surrendering personal information (say, Internet search history) very differently than Consumer *Z*.¹⁹⁴ To some consumers, or with regards to some advertisements, attention costs related to advertisements can be negligible, zero, or even negative. That is, some consumers may perceive

bowl/buzz-meter/2014/01/14/ad-meter-story-this-just-in-people-still-mostly-watch-super-bowl-for-ads/4458163/ [http://perma.cc/3VSK-V8NF].

¹⁹² Consider a simple example: Farmer *A* sells his wheat to Elevator *X* for \$8.00 per bushel, while Farmer *B* sells his wheat to Elevator *Y* for \$8.02 per bushel. (Assume that the prices here are delivered prices, that is, the farmers foot the bill for transporting the wheat to the elevators.) Because currency is fungible, an analyst can state with reasonable confidence that Elevator *Y*'s wheat costs are \$0.02 greater than Elevator *X*'s costs. Compare this to two hypothetical video-streaming services offered to consumers at zero prices. Service *A* features a lower total number of advertisements than Service *B*, but the average length of *A*'s ads is greater than that of *B*'s ads. Furthermore, *A*'s ads are of greater quality (for example, they contain more useful product information) but interrupt the viewing experience by occupying the entire user interface; however, *B*'s lower-quality ads take up only a portion of the screen. Even in this simplified hypothetical, the problem of comparing costs in such a market is eminently evident.

¹⁹³ See, e.g., Claire Cain Miller, *Americans Say They Want Privacy, but Act as if They Don't*, N.Y. TIMES: THE UPSHOT, Nov. 12, 2014, http://www.nytimes.com/2014/11/13/upshot/americans-say-they-want-privacy-but-act-as-if-they-dont.html?_r=0 [http://perma.cc/L3CA-MYFS] (discussing the results of a Pew Research survey). According to the survey responses, "The types of digital information that people consider to be most sensitive are their Social Security numbers, health information, the content of emails and phone calls and their location. They are least sensitive about their purchasing habits, media consumption, political and religious views, and the identities of their friends." *Id.*

¹⁹⁴ See, e.g., Patricia A. Norberg et al., *The Privacy Paradox: Personal Information Disclosure Intentions Versus Behaviors*, 41 J. CONSUMER AFF. 100, 101-02 (2007) ("[P]rivacy perceptions vary widely across populations and even within specific segments. A closely guarded secret to one may be the chance for an appearance on *The Jerry Springer Show* for another." (citations omitted)). But see generally II-Horn Hann et al., *Online Information Privacy: Measuring the Cost-Benefit Trade-off*, 23 INT'L CONF. ON INFO. SYSTEMS 1 (2002) (noting that previous research suggested that individual concern over privacy varies depending on cultural values, level of trust, contextual knowledge, and gender). Hann et al. surprisingly found that cost-benefit calculations did *not* vary along those lines. *Id.* at 4-7. A Pew Research Internet Project survey showed that "[p]eople with more education and higher incomes tend to be more sensitive about their online privacy And despite perceptions that young people care little about digital privacy, they often care more than older people." Miller, *supra* note 193.

some advertisements as an *added* value.¹⁹⁵ Accurately assessing costs imposed by advertisements is no small task.

These complexities make the assumption of perfect information particularly unfit for application to behavior in zero-price markets. Problems acquiring information, coupled with the structural issues noted above,¹⁹⁶ indicate that, like all markets, zero-price markets deviate in important ways from the idealized model of perfect competition. These deviations carry implications for the design and implementation of antitrust analysis.

2. Behavioral Deviations

Modern antitrust analysts have begun to grapple with whether and how to incorporate findings from behavioral economics. Some theorists' dissatisfaction with neoclassical economics' permeation of antitrust policy has spurred a search for new paradigms. Among the candidates is the field of behavioral economics: "[A] body of evidence in laboratory and field experiments that suggests actual individual choices systematically deviate" from what neoclassical rational-choice theory would predict.¹⁹⁷

Proponents of "behavioral antitrust" urge that neoclassical assumptions about rationality "fail to explain actual market behavior."¹⁹⁸ Basing antitrust analysis on insights that depend on these flawed assumptions, this argument runs, is misguided. Behavioral economics thus allows more realistic analyses of marketplace behavior.¹⁹⁹ Critics respond that behavioral antitrust offers less explanatory power than traditional models.²⁰⁰ To take entry as one example, behavioral antitrust implies that there may either be too much or too little—or both too much and too little—entry in response to an incumbent monopolist's high prices.²⁰¹ Yet it offers no principle for predicting

¹⁹⁵ Viewers often voluntarily seek out particularly popular advertisements on video-hosting services like YouTube. In 2014, the ten most popular YouTube-hosted advertising spots "earned a combined 425 million views and accounted for more than 1 billion total minutes of viewing time (that's about 1,900 years)." Tim Nudd, *The 10 Most Watched Ads on YouTube in 2014*, ADWEEK, (Dec. 9, 2014, 1:34 PM), <http://www.adweek.com/news-gallery/advertising-branding/10-most-watched-ads-youtube-2014-161843> [<http://perma.cc/EMX9-6PQT>].

¹⁹⁶ See *supra* subsection III.B.1.

¹⁹⁷ Joshua D. Wright & Judd E. Stone II, *Misbehavioral Economics: The Case Against Behavioral Antitrust*, 33 CARDOZO L. REV. 1517, 1519 (2012).

¹⁹⁸ Amanda P. Reeves & Maurice E. Stucke, *Behavioral Antitrust*, 86 IND. L.J. 1527, 1585-86 (2011).

¹⁹⁹ See, e.g., *id.* ("[R]eliance on these rational-choice theories will recede in the coming years Here, the behavioral economics literature . . . will advance competition policy in understanding such behavior.")

²⁰⁰ See Wright & Stone, *supra* note 197, at 1523-25 (highlighting several flaws that, according to Wright and Stone, limit the theory's predictive power).

²⁰¹ *Id.* at 1544.

ex ante which scenario is more likely to occur. Furthermore, behavioral economics research tends to analyze individual human—not firm—behavior, calling into question its relevance to general antitrust policy. Its critics also observe that, at a minimum, behavioral economics remains too underdeveloped for deployment in the field.²⁰²

The following discussion suggests that, within limits, behavioral economics can help illuminate zero-price markets in ways that are useful for antitrust policy. To the extent possible, it seeks to avoid taking a position in the broader debate outlined above (which is admittedly a fine line to walk).

a. *Not “Just a Number”: Demand and the Zero-Price Effect*

“In terms of competitive demand and supply, or the standard framework for a profit-maximizing firm setting price in the face of a downward sloping demand schedule, a ‘free price’ simply means that the competitive market or the profit-maximizing firm sets a price of zero. Zero is just another number.”²⁰³

Modern antitrust law has held no special regard for zero-price markets. Yet an emerging body of behavioral economics research has demonstrated that zero prices uniquely influence actual consumer behavior. Though this literature is still developing,²⁰⁴ it is robust enough that antitrust analysts ought to account for it in enforcement-related and judicial decisionmaking. Where consumer behavior does not fit the standard model, the model requires alteration. In short, economic models must fit real world facts, rather than the other way around.

Neoclassical economics generally proceeds under the baseline assumption of “perfectly rational, utility maximizing, narrowly self-interested” actors.²⁰⁵ A rational consumer assesses the costs and benefits of a widget and, so long as the benefit of purchasing exceeds the cost, she will purchase the widget. And so long as the marginal benefit exceeds the marginal cost, she will continue purchasing incremental units. The perceived benefit will not vary

²⁰² For a thorough analysis from this perspective, see Roger Van den Bergh, *Behavioral Antitrust: Not Ready for the Main Stage*, 9 J. COMPETITION L. & ECON. 203 (2013).

²⁰³ Evans, *supra* note 1, at 79.

²⁰⁴ See, e.g., Ahmed Driouchi et al., *How Zero Price Affects Demand?: Experimental Evidence from the Moroccan Telecommunications Market* 20 (Munich Pers. RePEc Archive, Working Paper No. 32352, 2011), http://mpra.ub.uni-muenchen.de/32352/1/MPRA_paper_32352.pdf [<http://perma.cc/L5FB-9X4D>] (concluding that “the zero-price model remains a complex model, and much additional work is needed to understand the complexities of this model in the marketplace”).

²⁰⁵ Some have dubbed this curious creature “*homo economicus*,” wryly implying that she does not in fact exist outside the abstract world of neoclassical economic theory. See, e.g., Max Huffman, *Marrying Neo-Chicago with Behavioral Antitrust*, 78 ANTITRUST L.J. 105, 115-16 (2012) (describing the inception of the behavioral economics movement).

with the price. Consider, for example, a consumer who calculates the benefits of a widget to be \$10. That consumer will value the widget at \$10 whether its price is set at \$5 or \$15. If the price is \$5, the consumer will purchase; if it is \$15, she will not.

In the case of a perfectly rational consumer deciding which of two competing products to purchase, a downward shift in the price of one of the goods may, all else equal, induce her to purchase that product. So long as both prices move downward in tandem, however, there will be no predicted substitution effect. To illustrate, assume the consumer values widget *A* at \$6 and widget *B* at \$16. Assume further that *A* is priced at \$5 and *B* at \$15. So long as the price of *A* is \$5 and the price of *B* is \$15, she will be indifferent as to the choice between the two: each will yield \$1 of consumer surplus. If the price of *A* is lowered to \$4 while the price of *B* remains \$15, she will choose *A*—it will now yield twice the surplus as would choosing *B*. But if the price of *A* is lowered to \$4 while the price of *B* is lowered to \$14, the consumer should remain indifferent (though undoubtedly happier to have reaped an additional \$1 of welfare surplus). This dynamic should remain constant even if the price of *A* were lowered all the way to \$0, so long as the price of *B* were lowered a corresponding amount.²⁰⁶ Under the standard account, when it comes to prices, “[z]ero is just another number”²⁰⁷ (albeit one that should indicate nontraditional market features, such as two-sidedness, are at play²⁰⁸).

This standard account, however, ignores one very important factor: the singular effect of zero prices. Recent behavioral economics research has demonstrated that when consumers are faced with a choice between a zero-priced option and a positively priced option, “the demand for the cheaper good increases, and more importantly, the demand for the more expensive good may decrease as consumers switch from the more expensive good to the cheaper one.”²⁰⁹ This effect holds true even where a standard cost–benefit

²⁰⁶ Setting aside for the moment the possibility of transaction costs affecting the decision, a possibility that is discussed further *infra*.

²⁰⁷ Evans, *Antitrust Economics*, *supra* note 1, at 79.

²⁰⁸ *Id.* at 86.

²⁰⁹ Kristina Shampanier et al., *Zero as a Special Price: The True Value of Free Products*, 26 *MARKETING SCI.* 742, 745 (2007). The basic structure of the experiments that first confirmed the existence of the zero-price effect involved, as in the example used above, two different sets of prices for the same two competing products. The first pairing of prices offered to consumers generally consisted of two positive prices (e.g., \$0.01 for one product and \$0.15 for the other). The researchers then offered the same goods to consumers with the second set of prices, this time establishing one positive price and one zero price (e.g., \$0 for the product previously offered at \$0.01 and \$0.14 for the product previously offered at \$0.15).

analysis, or even an alternative “ratio-based” cost–benefit analysis, would seem to favor choosing the positively priced product.²¹⁰

To the businessperson, this market behavior likely seems unsurprising,²¹¹ but to a neoclassical economist, it presents a puzzle. The initial objection would likely be that transaction costs may explain consumers’ seemingly irrational predilection for zero-price goods. One could argue that consumers may lopsidedly favor zero-price goods because zero-price transactions entail lower transaction costs. Transaction costs are, as their name suggests, simply the costs of conducting a transaction: the time and effort expended by each party required in order to consummate it. Because no money need change hands in transactions involving zero-price products—the consumer need not carry and produce cash or another payment form, the cashier need not make change or wait for a card authorization, and so on—such trades would generally entail lower transaction costs than similar transactions involving positively priced products.

Yet existing research has shown that transaction costs (or the near-total lack thereof) do not explain away the zero-price effect.²¹² Rather, the positive affect associated with engaging in zero-price transactions triggers an outsized increase in valuation and demand, as indicated by consumers’ revealed preferences.²¹³ Researchers have dubbed this the “zero-price effect.”²¹⁴

²¹⁰ *Id.* at 747 (“[T]he results . . . demonstrate that valuations of free goods increase beyond their cost-benefit differences . . .”).

²¹¹ Zero prices to consumers is attractive in myriad business settings. For example, consider AT&T’s entry into the issuing side of the general purpose credit card market in 1990. AT&T’s “Universal Card” was the first widely available, general-purpose card to offer a \$0 annual fee, essentially offering consumers access to a zero-price credit card for the first time. Dennis W. Carlton & Alan S. Frankel, *The Antitrust Economics of Credit Card Networks*, 63 ANTITRUST L.J. 643, 653 (1995). This feature proved so popular that, in the upheaval following AT&T’s entry, “over 400 other issuers began selectively waiving their own annual fees to keep customers from defecting to AT&T.” *Id.*

²¹² Shampanier et al. conducted a series of additional experiments that ruled out mapping difficulty (i.e., the possibility that consumers prefer zero-price options due to an inability to evaluate the utility of hedonic goods) and (under at least some conditions) social norms as potential explanations. Shampanier et al., *supra* note 209, at 749–51.

²¹³ Interestingly, this positive effect does not necessarily occur in consumers faced with zero-value, nonprice product attributes. In fact, where consumers are faced with at least two options, the shift from a positive-value attribute to a zero-value attribute can actually cause consumers to prefer the option with the positive-value (nonprice) attribute—essentially the inverse of the zero-price effect. This function holds true even where the relevant attribute is objectively undesirable. *See generally* Mauricio M. Palmeira, *The Zero-Comparison Effect*, 38 J. CONSUMER RES. 16 (2011) (arguing that this function may be explained by the removal of a positive value eliminating a useful reference point for consumers, thereby causing a “zero-comparison” effect).

²¹⁴ DAN ARIELY, PREDICTABLY IRRATIONAL: THE HIDDEN FORCES THAT SHAPE OUR DECISIONS 55–72 (2008).

b. *Systematic Overconsumption*

Consumers' skewed preference for zero-price products can cause them to engage in behavior that appears to be wasteful or inefficient. Individuals may overconsume or even hoard resources available to them at a price of zero.²¹⁵ Such behavior may be particularly likely to occur where individuals are able to externalize some or all of the costs of such behavior.

For example, transportation economists studying drivers' use of public roads have long recognized that, absent any "road pricing" (e.g., tolls charged to access heavily used motorways at peak traffic times), drivers will tend to overuse roads, causing traffic congestion to rise above efficient levels.²¹⁶ Similarly, researchers contend that "serious economic inefficiencies," including congestion, can occur where prices to access airport slots are not set at cost by market forces.²¹⁷ Health economists studying the modern obesity epidemic point out that consumers have increasingly engaged in systematic caloric overconsumption during the past four decades.²¹⁸ It is theorized that this trend is due, at least in part, to health insurance and governmental programs now allowing individuals to externalize much of the cost of being obese (though not, in most cases, the cost of *becoming* obese, since most food is obtained via positive-price transactions). In a sense, the condition becomes "free" to the consumer, though it remains costly to society.²¹⁹

²¹⁵ See, e.g., Benjamin Edelman, *Priced and Unpriced Online Markets*, 23 J. ECON. PERSP. 21, 21-22 (2009) ("[O]verconsumption, scarcity, and even hoarding [can occur] when resources are provided without charge.").

²¹⁶ See, e.g., A. C. PIGOU, *THE ECONOMICS OF WELFARE* 186 (AMS Press, Inc. photo. reprint 1978) (Macmillan & Co. 4th ed. 1932) (1920) (arguing that roads are overused because drivers are able to externalize the congestion costs they create). For a summary of the debate over how to optimally correct road congestion market failures, see generally Robin Lindsey, *Do Economists Reach a Conclusion on Road Pricing? The Intellectual History of an Idea*, 3 ECON J. WATCH 292 (2006).

²¹⁷ Philip Booth, *Foreword* to KEITH BOYFIELD ET AL., *A MARKET IN AIRPORT SLOTS* 12 (Keith Boyfield ed., 2003). "Slot" is the industry term used to refer to a designated time when, and place where, an aircraft can take off or land from an airport.

²¹⁸ But see Damon C. Andrews, *The Ownership-Usage Dichotomy and the Human Element in Newman's Freeeconomy*, 66 VAND. L. REV. EN BANC 179, 186-87 (2013), <http://www.vanderbiltlawreview.org/content/articles/2015/03/The-Ownership-Usage-Dichotomy-and-the-Human-Element-in-Newmans-Freeeconomy.pdf> [<http://perma.cc/T7KT-PSUC>] (arguing that "overconsumption" is misleading in this context, since it fails to account for the gustatory pleasure derived by the overconsumers).

²¹⁹ See, e.g., Kathryn M. Sharpe, *Underlying Contextual Effects Leading to Over Consumption: Extremeness Aversion and Bundling* 2 (2008) (unpublished Ph.D. dissertation, Duke University) ("Because the cost is spread over all tax payers and insurance premium holders, obesity imposes negative externalities on much of society."). For an overview of the economic causes and repercussions of the obesity epidemic, see Eric A. Finkelstein et al., *Economic Causes and Consequences of Obesity*, 26 ANN. REV. PUB. HEALTH 239 (2005).

Systematic overconsumption does not always occur in the presence of zero-price products. If, for example, a strong social norm is in place to prevent such behavior, consumers may follow the norm. In one experiment, students who were offered a piece of candy in exchange for \$0.01 purchased, on average, approximately four pieces of candy. When the same candy was made freely available in exchange for \$0, the total number of “customers” increased, but almost none of the students took more than a single piece. Researchers theorized that a limiting social norm regarding “free” candy bowls trumped the zero-price effect observable in settings where at least one positively priced competing product was available.²²⁰ Absent a countervailing norm, however, systematic overconsumption can be a socially undesirable side effect of zero prices.

c. *The Limits of Behavioral Antitrust*

Proposing that antitrust enforcers and judges take into account the findings of behavioral economics is not uncontroversial.²²¹ Perhaps the primary criticism of behavioral antitrust is that the evidence it presents as reflecting the “real world” typically stems from laboratory and field experiments involving college students, or other individual actors.²²² And the behavioral economics literature discussed above is certainly subject to this criticism.²²³ As such, it may have little to say about how firms think and act. Admittedly, a firm is a collection of individual humans, but it is also a separate, nonhuman entity governed by a unique set of laws. And even granting that individual employees could impart their own biases and cognitive limitations into the firm’s decisions and actions, behavioral economics has not yet demonstrated that they do so in a systematic way that mirrors their individual choices. People may act differently in a group that is organized into a corporate form than they do in other groups or on their own. Unless contradicted by future research, this will remain a fatal flaw. There is no principled reason to assume that the teachings of behavioral economics map perfectly (or even at all) onto firm behavior. For analysts conducting antitrust law in practice, with implications

²²⁰ Shampanier et al., *supra* note 209, at 743.

²²¹ See, e.g., Alan Devlin & Michael Jacobs, *The Empty Promise of Behavioral Antitrust*, 37 HARV. J.L. & PUB. POL’Y 1009, 1014 (2014) (“[W]e show that behavioral antitrust is malleable to the point of being meaningless. In this respect, we part company with those skeptics of behavioral antitrust who believe that the field can serve an ancillary role in contemporary antitrust jurisprudence.”).

²²² See Wright & Stone, *supra* note 197, at 1523-24 (“[W]hile firms may be, at their core, self-selected aggregations of individuals, it does not follow that firms necessarily behave with similar, or similarly predictable, consequences.”).

²²³ See *supra* subsection III.B.2.

for real-world actors, reliance on behavioral economics for that purpose is (at least) premature.

All of this suggests that the behavioral economics literature discussed above can be relied on when analyzing the behavior of individual *human* consumers, but not necessarily that of firms.²²⁴ There appear to be no existing studies that attempt to answer whether firms are subject to zero-price effects. An extremely rough survey of where zero-price offers tend to be prevalent, however, suggests that firms are less susceptible to, and perhaps largely immune from, such effects. In their seminal paper on two-sided markets, Rochet and Tirole list several examples of existing two-sided business models.²²⁵ Among these are several where zero-price products now feature prevalently: creative content, Internet browsers, broadcast television, and credit and debit cards.²²⁶ To these I would add online newspapers and various web-based software programs like email, word processing, and spreadsheet programs. These two-sided examples are illustrative because they require a platform to set a price level and structure to two different groups: one comprising individuals and one comprising firms. Content today, for example, is often delivered via a platform bringing together consumers and advertisers. Broadcast television, other than subsidized public programming, operates similarly. Credit card platforms bring together merchants, typically firms, and individual cardholders.

Tellingly, in each of these examples where a firm operating the platform sets prices to both groups, zero prices obtain only on the *individual human consumer* side of the market. Firms generally face positive prices. Thus, for example, while both advertisers and consumers incur costs to access an online content delivery platform, the platform sets positive prices to advertisers and zero prices to consumers. Likewise, as to payment cards, the networks charge substantial interchange fees to merchants but offer cards to individuals at zero, or even negative, prices.²²⁷ If firms and individuals were equally subject to zero-price effects, one would expect to see a mix of price structures in two-sided markets featuring zero prices. The relative scarcity of zero-price offers to firm-facing sides of markets suggests that firms are less “predictably irrational” than human consumers. Again, this is far from a

²²⁴ This is true regardless whether the firm being analyzed is acting as a consumer, buyer, or seller.

²²⁵ Rochet & Tirole, *supra* note 33, at 992 tbl.1.

²²⁶ *Id.*

²²⁷ A cardholder who uses a payment card that is attached to a rewards program and that does not require payment of an annual fee is, in effect, paying less than zero to use the card. The success of credit card rewards programs borders on incredible—nearly every card today offers some sort of rewards for its use. Interestingly, this suggests that there may exist a “less-than-zero price effect.”

rigorous survey, and it is not meant to demonstrate that there are no (or merely few) instances where businesses consume zero-price products—such instances exist, though they appear to be relatively rare as compared to the instances of human consumption.²²⁸ Yet it certainly does not refute the criticism of behavioral economics noted above.²²⁹ Rather, it appears to confirm that critics urging the limited applicability of behavioral economics to firm behavior may have a valid point.

3. Conclusions

The market features described above tend to reduce the efficacy of competition. Most relevantly for present purposes, they generally limit customers' ability to act as a check on anticompetitive behavior. Some zero-price markets may demonstrate additional features beyond those discussed above that tend to reduce the efficacy of competition.²³⁰ As a general principle, competition in zero-price markets likely functions less efficiently than it does in the markets that were the subject of traditional antitrust analyses.²³¹ The efficacy of competition in the marketplace has ramifications for error-cost analyses of antitrust: if markets are less likely to self-correct, the costs of false negatives increase. On the other hand, antitrust is institutionally ill-equipped to address many of these structural and behavioral deviations. Perfect competition, in any market, is an unreachable ideal; it may just be particularly so in zero-price markets.

C. *Harm to Competition and Consumers*

The structure and features of zero-price markets strongly suggest that market failures frequently occur, and that such markets do not necessarily yield optimal outcomes. Whether antitrust law ought to be used as a corrective

²²⁸ For examples of businesses consuming zero-price services, see generally David S. Evans, *Excessive Litigation by Business Users of Free Platform Services* (Univ. of Chi. Coase-Sandor Inst. for Law & Econ., Paper No. 603, 2012), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2085029 [<http://perma.cc/6F9A-C4M5>].

²²⁹ See, e.g., *supra* note 221.

²³⁰ See, e.g., Argenton & Prüfer, *supra* note 91, at 76 (explaining that “indirect externalities arise in the market for search engines because users will not consider . . . that the results of their query are stored by the search engine”). Argenton and Prüfer conclude that these indirect network externalities make the search engine market a natural monopoly, and that the collapse to a monopolist-dominated market would harm welfare. *Id.* at 76-77.

²³¹ Cf. Joseph E. Stiglitz, *On the Microeconomics of Technical Progress* (arguing that markets associated with knowledge and information are among those markets that “are, inherently, imperfect”), in *TECHNOLOGY GENERATION IN LATIN AMERICAN MANUFACTURING INDUSTRIES* 56, 59-61 (Jorge M. Katz ed., 1987).

tool depends first on whether conduct by participants in these markets can cause the type of harm antitrust law is meant to remedy. Modern consensus holds that antitrust is meant to remedy disruptions of the competitive process that harm consumer welfare.²³²

Conceptually, antitrust harm in zero-price markets is similar to harm in positive-price markets. Only the medium, not the structure or fact, of exchange is different. The same types of conduct traditionally condemned by antitrust law also warrant scrutiny in the zero-price context. For example, a merger-to-monopoly between two head-to-head rivals can allow monopolistic overcharges, whether those overcharges occur via the traditional medium of money or via attention or information.²³³ A monopolist in a zero-price market may impose a naked restraint on innovation by rivals.²³⁴ A cartel may engage in product–market division or fix levels of advertising.

The most fundamental problem regarding harm in zero-price markets arises from refusing or failing to acknowledge the existence, or even the possibility, of such harm. Failure to understand that consumers can and do exchange attention and/or information for valuable products can lead to costly errors in judgment. Antitrust analysts currently are hampered by an inability to conceive of zero-price markets as relevant antitrust markets, likely due to having been thoroughly steeped in neoclassical, price-focused theory. This inability can cause—and likely has caused—analysts to conclude incorrectly that consumers cannot be harmed by a transaction or event because there is no market in which consumer harm could occur.²³⁵ The following discusses one example of such an oversight.²³⁶

In the 1990s, Congress experimented with deregulating many industries, among them broadcast radio. The Telecommunications Act of 1996 relaxed limitations on radio station ownership.²³⁷ Massive industry consolidation followed. Less than a decade after Congress began deregulating the radio

²³² See, e.g., Joshua D. Wright & Douglas H. Ginsburg, *The Goals of Antitrust: Welfare Trumps Choice*, 81 *FORDHAM L. REV.* 2405, 2406 (referring to “[t]he promotion of economic welfare as the lodestar of antitrust laws” (footnote omitted)).

²³³ See *infra* notes 244–50 and accompanying text (discussing the example of radio mergers).

²³⁴ Microsoft’s conduct targeting the zero-price Netscape browser (and, ultimately, the spread of Java as a multiplatform-capable programming language) comes close to exemplifying this type of harm. CHRISTINA BOHANNAN & HERBERT HOVENKAMP, *CREATION WITHOUT RESTRAINT: PROMOTING LIBERTY AND RIVALRY IN INNOVATION* 248–50 (2012).

²³⁵ This type of error is commonly known as a Type II error.

²³⁶ Unfortunately, this was likely not an isolated occurrence. See, e.g., Grunes & Stucke, *supra* note 86, at 7 (“Antitrust enforcers historically ignored the viewer’s or listener’s role in traditional radio and television media.”); *infra* note 257 (discussing a similar oversight in the context of newspapers).

²³⁷ Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56 (codified as amended in scattered sections of 47 U.S.C.).

industry in earnest, the degree of market concentration was already striking. Prior to deregulation, no single company owned more than forty radio stations.²³⁸ By 2002, a single firm owned over 1200 stations and allegedly dominated the audience share in 100 major markets.²³⁹ In Minot, the fourth-largest city in North Dakota, a single firm allegedly owned every commercial broadcast radio station competing in the market.²⁴⁰

Many of the mergers and acquisitions that led to these high concentration levels were reviewable by the U.S. government's antitrust enforcement agencies.²⁴¹ Yet the DOJ Antitrust Division, which was responsible for reviewing the mergers under the Clayton Act, failed entirely to consider the implications for consumers.²⁴² Instead, the agency's attorneys and economists focused solely on whether the transactions would cause harm to the advertiser side of the market.²⁴³ In a speech to a group of radio industry stakeholders, then-Acting Assistant Attorney General Joel Klein carefully outlined DOJ's analytical process regarding radio mergers.²⁴⁴ DOJ's analyses of both market definition and market power dealt solely with prices to advertisers.²⁴⁵ Harm to consumers was not considered.

For an agency that prides itself on promoting consumer welfare,²⁴⁶ this oversight may seem inexplicable. In fact, it is very likely due to the influence of

²³⁸ Houghton, *supra* note 14.

²³⁹ That firm was Clear Channel Communications. Jeff Perlstein, *Clear Channel: The Media Mammoth That Stole the Airwaves*, RECLAIM DEMOCRACY (Nov. 2002), http://reclaimdemocracy.org/clear_channel_backlash [<http://perma.cc/L83R-JCN7>].

²⁴⁰ Jennifer S. Lee, *On Minot, N.D., Radio, A Single Corporate Voice*, N.Y. TIMES, Mar. 31, 2003, at C7. A competing account states that there was one additional commercial station operating in the market. See Jack Shafer, *What Really Happened in Minot, N.D.?*, SLATE (Jan. 10, 2007, 6:15 PM), http://www.slate.com/articles/news_and_politics/press_box/2007/01/what_really_happened_in_minot_nd.html [<http://perma.cc/FT44-ZAUR>].

²⁴¹ See, e.g., ROGER L. SADLER, ELECTRONIC MEDIA LAW 118-19 (2005) (describing the wave of media mergers in the 1990s).

²⁴² See Maurice E. Stucke & Allen P. Grunes, *Why More Antitrust Immunity for the Media Is a Bad Idea*, 105 NW. U. L. REV. 1399, 1411 (2011) ("In analyzing radio mergers under the Clayton Act, DOJ considered their economic impact solely with respect to advertisers and the rates they paid even though many possible product markets exist . . ." (citation omitted)).

²⁴³ *Id.*

²⁴⁴ Joel I. Klein, Acting Assistant Att'y Gen., Antitrust Div., U.S. Dep't of Justice, Speech at the ANA Hotel: DOJ Analysis of Radio Mergers (Feb. 19, 1997), <http://www.justice.gov/atr/public/speeches/1055.pdf> [<http://perma.cc/T8XD-EN3T>].

²⁴⁵ *Id.* at 7-19.

²⁴⁶ E.g., THOMAS O. BARNETT & HILL B. WELLFORD, ANTITRUST DIV., U.S. DEP'T OF JUSTICE, THE DOJ'S SINGLE-FIRM CONDUCT REPORT: PROMOTING CONSUMER WELFARE THROUGH CLEARER STANDARDS FOR SECTION 2 OF THE SHERMAN ACT, <http://www.justice.gov/atr/dojs-single-firm-conduct-report-promoting-consumer-welfare-through-clearer-standards-section-2> [<http://perma.cc/6Z5S-DJX8>] (last updated 2015).

price-focused economics.²⁴⁷ As to each proposed transaction, DOJ analysts considered whether the merged entity would likely impose profitable price increases on advertisers.²⁴⁸ To be sure, higher prices to advertisers is one source of potential harm in a zero-price market. What DOJ failed to understand is that higher advertiser prices were not the only source of potential harm.

To illustrate, assume Station *A* and Station *B* are the only radio stations competing in a given geographic market. Both stations compete for listeners by offering zero-price broadcast radio programming in exchange for listeners' attention to advertisements.²⁴⁹ Both stations also compete for advertisers by offering access to listeners' attention in exchange for money.²⁵⁰ If *A* and *B* were to merge, the newly formed entity could potentially exercise market power either by (1) increasing prices (and restricting output) to advertisers, or (2) increasing attention costs (and restricting output) to listeners by, for example, increasing the amount of airtime devoted to advertisements.²⁵¹ Either strategy, if successful, would cause the type of welfare harms that antitrust law is meant to prevent. In economics parlance, Type II (false negative) errors may arise where an analyst fails to investigate the latter source of harm.²⁵²

The wave of deregulation following passage of the Telecommunications Act of 1996 essentially comprised hundreds of *As* merging with hundreds of *Bs*. This consolidation created an experiment that raises and allows an answer to the following question: what happens to attention costs in zero-price broadcast radio markets when competition is reduced? Empirical analysis demonstrates exactly what one would expect if attention-cost rivalry were

²⁴⁷ See *infra* Section IV.B.

²⁴⁸ Cf. U.S. DEP'T OF JUSTICE & FED. TRADE COMM'N, HORIZONTAL MERGER GUIDELINES § 1.11 (rev. 1997) [hereinafter HMGS] (“[T]he Agency will delineate the product market to be a product or group of products such that a hypothetical profit-maximizing firm that was the only present and future seller of those products (‘monopolist’) likely would impose at least a ‘small but significant and nontransitory’ increase in price.”).

²⁴⁹ Cf. *Clear Channel Communications*, WIKINVEST, http://www.wikinvest.com/stock/Clear_Channel_Communications#Radio_Broadcasting_2 [<http://perma.cc/4WJZ-W5CB>] (last visited Sept. 19, 2015) (“Besides ad revenues themselves, Clear Channel’s radio broadcasting division also competes for greater audiences, which are the source of the value of their ad spots.”).

²⁵⁰ Cf. *id.* (“The radio industry . . . compete[s] with many forms of media for advertising dollars.”).

²⁵¹ See Ivan Reidel, *The Taylor Swift Paradox: Superstardom, Excessive Advertising and Blanket Licenses*, 7 N.Y.U. J.L. & BUS. 731, 748 (2011) (“A station with market power over audiences will be able to increase advertising time, and one with power over advertisers will likely be able to increase advertising prices by reducing available air-time for ads.”).

²⁵² See, e.g., Alan Devlin & Michael Jacobs, *Antitrust Error*, 52 WM. & MARY L. REV. 75, 79 (2010) (“Courts, agencies, and academics have reacted to antitrust’s unusual vulnerability to error by adopting a bias in favor of false negatives (Type II errors).”).

taken seriously: as market concentration increased, the amount of time devoted to advertisements also increased.²⁵³ In short, the wave of mergers eliminated a great deal of competition in the broadcast radio markets for listeners—the markets DOJ ignored. After competition was eliminated, the remaining firms exercised their newfound market power by increasing attention costs. Tellingly, the amount of time devoted to advertisements increased most sharply during times of the day when listeners have fewer close substitutes.²⁵⁴ In short, millions of consumers have been harmed through paying monopolistic overcharges, due in large part to antitrust law's failure to account for zero-price markets.

DOJ's single-minded focus on positive-price markets—here, the advertiser side of broadcast radio markets—led it to overlook precisely the type of harm that is at the core of its mission. Conduct that enhanced market power was not stopped in its incipiency—and in the merger context, incipiency is often the only viable stage for intervention. This massive oversight has gone unchallenged on such orthodox grounds. A few scholars have criticized DOJ's approach to broadcast radio mergers for failure to properly account for potential harm to the democratic process.²⁵⁵ That type of harm, however, lies outside the generally agreed-upon purview of modern U.S. antitrust enforcement.²⁵⁶ But even taking as a given the consensus view of antitrust's goals, ignoring the potential harms that can occur in zero-price markets is incorrect as a matter of antitrust policy. In economics parlance, it risks Type II (false negative) error.

Broadcast radio markets provide just one example of potential regulatory oversight failures. "Free" weekly newspaper markets may be another example,²⁵⁷

²⁵³ Mooney, *supra* note 161, at 19.

²⁵⁴ *Id.*

²⁵⁵ See, e.g., Stucke & Grunes, *supra* note 242, at 1411-12 ("The DOJ's radio merger consent decrees never address nonprice competition Nothing in the Clayton Act restricts the DOJ to consider solely advertising competition.").

²⁵⁶ See, e.g., HOVENKAMP, *supra* note 12, at 14-15 (noting a general consensus view that antitrust's sole aim is protecting consumer welfare, as the term is generally used by neoclassical economists).

²⁵⁷ Both Canadian and U.S. competition authorities also appear to have overlooked potential consumer harms in zero-price newspaper markets. In 2014, Canada's Competition Bureau concluded its evaluation of the proposed acquisition by Transcontinental of Quebecor Media. Press Release, Competition Bureau, Statement Regarding the Acquisition by Transcontinental of Quebecor Media's Community Newspapers in Quebec (May 28, 2014), <http://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/eng/03740.html> [<http://perma.cc/U3XY-BFWR>]. Both firms operated community newspapers, which according to the Bureau are "free weeklies that are distributed door-to-door." *Id.* The weeklies were not really "free" to consumers, however, who paid for the papers with attention to advertisements. Yet the Bureau defined the relevant market as "advertising in community newspapers," and focused heavily on potential harm to advertisers in the form of higher prices. *Id.* The Bureau briefly noted the potential "impact . . . on the quality of the content offered to readers," *id.*, but failed to analyze the potential for harm to readers via higher attention costs. This

though one that appears to lack empirical data confirming consumer harm. The FTC's competition analysis of Facebook's acquisition of Instagram may have been a recent example of Type II error in a high-technology market. To an FTC regulator focused on harm to positive-price markets, Facebook–Instagram would clearly have posed no threat: Instagram had not yet been monetized.²⁵⁸ And, even if it had been, Internet advertisers may well have exhibited demand that was much more elastic with regard to a particular type of platform (e.g., photo-sharing social networks) than was users' demand for that platform.²⁵⁹ Though antitrust theorists remained largely silent on the deal, commentators from the business community identified it as a strategic acquisition designed to eliminate competition in the (zero-price) market for users.²⁶⁰ Despite this, Facebook's acquisition was unanimously approved without comment.²⁶¹

Ex ante, civilians cannot conclude with certainty whether a Type II error will occur if enforcers or courts decline to find antitrust liability for a certain instance of conduct. Determining whether other products are close enough substitutes to prevent a firm from exercising market power over listeners, readers, or users requires detailed analyses of facts beyond the reach of ordinary individuals.²⁶² And even enforcement agencies and courts admit

analysis was similar to DOJ's conclusions regarding a geographic-market-allocation conspiracy between Village Voice and New Times, the two largest U.S. chains of zero-price "alternative newsweeklies." See generally *United States v. Vill. Voice Media, LLC*, No. 1:03 CV 0164, 2003 WL 21659092, at *13-20 (N.D. Ohio Feb. 12, 2003). DOJ's analysis of competition between the two firms focused on price competition for advertisers' business and "editorial competition" (e.g., new features or increased investigative journalism) for readers. *Id.* DOJ's competitive impact statement did not, however, address the possibility that the market-allocation scheme could have resulted in increased attention costs to readers.

²⁵⁸ Shayndi Raice & Spencer E. Ante, *Insta-Rich: \$1 Billion for Instagram*, WALL ST. J., Apr. 10, 2012, at B1.

²⁵⁹ For example, an advertiser may not be quite as sensitive to whether an ad appears on a news website or a social network—the two can be fairly close substitutes. Yet for users, the two products may be quite distant substitutes, as they serve very different purposes.

²⁶⁰ See, e.g., Raice & Ante, *supra* note 258, at B6 ("All this growth hasn't yet translated to revenue. But in the lingua franca of today's social-media industry that doesn't matter as much as user engagement and the ability to access those users' personal data.").

²⁶¹ See Press Release, FTC, FTC Closes Its Investigation into Facebook's Proposed Acquisition of Instagram Photo Sharing Program (Aug. 22, 2012), <http://www.ftc.gov/news-events/press-releases/2012/08/ftc-closes-its-investigation-facebooks-proposed-acquisition> [<https://perma.cc/VE9T-2X63>] ("[T]he [Facebook–Instagram] deal may now proceed as proposed. The Commission vote to close the investigation was 5-0.").

²⁶² Among other unique tools, the Hart–Scott–Rodino Antitrust Improvements Act of 1976 authorizes DOJ and the FTC to use civil investigative demands to compel production of documents and data before filing complaints. 15 U.S.C. § 18a (2012). Canada's Competition Bureau has similar authority to conduct precomplaint discovery. For details on this process, see *Complaint*

that absolute certainty is impossible.²⁶³ The point is that antitrust institutions have—at the very least—a duty to conduct such analyses in zero-price markets.²⁶⁴ Where market analyses are not conducted, there is potential for massive harm to consumer welfare due to systematic underenforcement of antitrust laws.

D. *Explaining the Failure of Antitrust Law and Economics*

Modern antitrust theory and practice—the “antitrust enterprise”²⁶⁵—traces its roots to a time when national output was heavily dependent on raw natural resources and manufactured goods. Economies were agrarian and industrial. And, unsurprisingly, the traditional targets of antitrust enforcement competed in commoditized lines of commerce: oil, steel, aluminum, tobacco, and the like.²⁶⁶ For purposes of economic and antitrust analyses, this type of market is relatively simple to navigate. The relevant products are largely homogeneous—one bushel of corn, foot of pipe, or pound of cement is generally a nearly perfect substitute for another. Production is often subject to substantial economies of scale,²⁶⁷ a feature that tends to increase market concentration and yield a manageable number of large, established competitors in a given market.²⁶⁸ Barriers to entry often consist primarily of time and capital.²⁶⁹ And firms compete primarily by setting price²⁷⁰ or output²⁷¹ levels, rather than by product innovation. Given this relative simplicity, antitrust courts and scholars attempting to

Process, COMPETITION BUREAU, http://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/eng/h_00019.html [<http://perma.cc/RVP6-2HAC>] (last updated Jan. 11, 2012).

²⁶³ See, e.g., *J. Truett Payne Co. v. Chrysler Motors Corp.*, 451 U.S. 557, 566 (1981) (“The vagaries of the marketplace usually deny us sure knowledge of what plaintiff’s situation would have been in the absence of the defendant’s antitrust violation.”).

²⁶⁴ See, e.g., *Antitrust Division: Mission*, U.S. DEP’T JUST., <http://www.justice.gov/atr/about/mission.html> [<http://perma.cc/XS2R-7UXA>] (last visited Sept. 19, 2015) (“The mission of the Antitrust Division is to promote economic competition through enforcing . . . antitrust laws and principles.”)

²⁶⁵ HOVENKAMP, *supra* note 12.

²⁶⁶ See *supra* note 177 and accompanying text.

²⁶⁷ That is, the amount it costs a firm to produce an additional unit of output decreases as the firm’s scale increases. This function is due to the firm’s ability to spread its fixed costs (costs that do not vary with the rate of production) over a larger amount of output.

²⁶⁸ See W. KIP VISCUSI ET AL., *ECONOMICS OF REGULATION AND ANTITRUST* 150-52 (3d ed. 2000) (“Perhaps the most important explanation of why some industries are more concentrated than others is the magnitude of economies of scale relative to total market demand.”).

²⁶⁹ Under the “Bainian” definition (named for its proponent and a pioneer in the study of entry barriers, Joe Bain), scale economies themselves are properly considered to be entry barriers. See generally JOE S. BAIN, *INDUSTRIAL ORGANIZATION* (2d ed. 1968) (1959).

²⁷⁰ As is the case under the Bertrand model of competition.

²⁷¹ As is the case under the Cournot model.

understand strategic behavior in such markets could engage in fairly straightforward applications of foundational economic principles.²⁷²

During the mid-twentieth century, neoclassicists associated with the Chicago School of Economics developed a set of tools to be used for analyzing industrial organization. The tools themselves were fairly simple—for example, the idea that the relationship between price and quantity in a given market can be described by a downward-sloping demand curve.²⁷³ Due to the central role played by prices in formulating and applying each of these tools, the resulting approach became known as “price theory.”²⁷⁴ And, though economists, attorneys, and courts frequently used “price” as a stand-in for other avenues of competition (e.g., quality)—this dependence on prices as such inevitably led to a rather singular focus on price competition. So long as the bulk of the economy comprised markets with positive prices, the resulting risk of Type II error was relatively small.²⁷⁵

The world has changed. A series of disruptive innovations centered on digital computing and networking has upended many traditional market structures. While firms still compete in commoditized markets, and developing economies often comprise predominantly agriculture and manufacturing sectors, developed economies have grown to rely instead on technology sectors, which tend to be considerably more complex for purposes of antitrust law and economics.²⁷⁶ The universe of homogeneous goods and static price competition that gave birth to modern analyses now bears little resemblance to much of the actual, present-day world in which firms and consumers interact.

One particularly striking—and under-researched—consequence of the digital revolution is the rise to prominence of firms offering goods and services at zero prices. While zero-price products have existed for many decades, even centuries, such offerings have increased exponentially and

²⁷² Such principles include, for example, downward-sloping demand curves and upward-sloping, long-run, actual-cost curves. *Cf., e.g.,* Alan Devlin, *A Neo-Chicago Perspective on the Law of Product Tying*, 44 AM. BUS. L.J. 521, 560-61 (2007) (“[T]raditional antitrust jurisprudence has been aimed at those industries with eventual rising average costs in production.”).

²⁷³ *E.g.,* Richard A. Posner, *The Chicago School of Antitrust Analysis*, 127 U. PA. L. REV. 925, 928 (1979).

²⁷⁴ *See id.*

²⁷⁵ Though such a risk was certainly present, as the foregoing discussion of consumer harm in broadcast radio markets clearly suggests.

²⁷⁶ Among these differences are “falling average costs . . . over a broad range of output, . . . very high rates of innovation, . . . and economies of scale in consumption (also known as ‘network externalities’).” Posner, *New Economy*, *supra* note 177, at 926. Posner also argued that technology markets are characterized by “modest capital requirements relative to what is available for new enterprises from the modern capital market.” *Id.*

now feature conspicuously across modern markets.²⁷⁷ Creative content (e.g., films, music, books, and articles), software, search functionality, social media platforms, mobile applications, travel booking, and myriad other goods and services are now widely distributed at zero prices.²⁷⁸

Antitrust law, however, has failed to evolve to account for the disappearance of prices. The antitrust enterprise remains firmly grounded in price theory, yet this dependence has inevitably led to an exclusive focus on price competition that is often inappropriate in the face of zero prices. As a fundamental matter, the single-minded focus on prices can cause antitrust institutions to overlook entirely the presence of zero-price markets.²⁷⁹ Furthermore, many of the analytical tools developed by antitrust theorists over recent decades have proved inadequate, even entirely unworkable, when applied to zero-price markets. Consider market definition, widely considered to be the foundational inquiry in civil antitrust investigations and litigation. The touchstone for most modern market definition analyses is whether a hypothetical monopolist or cartel could profitably impose a small increase in *price*.²⁸⁰ Corollary to defining the relevant market (and of even more importance) is the question of whether a firm has market power. Yet here again the most widely cited legal standard—whether the firm has the ability to “control prices or exclude competition”²⁸¹—is (at least in part) facially inapplicable to a market featuring zero prices.

Price theory has done much to rationalize the antitrust enterprise. Yet the singular focus on market prices has caused a severe dissonance between antitrust law and modern marketplace reality. Many of the basic insights of price theorists, though developed with positive-price markets in mind, can apply to zero-price markets. That said, if it is to remain accurate that “antitrust doctrine is supple enough . . . to take in stride the competitive issues presented by the new economy,”²⁸² antitrust law must confront squarely the issue of competition in zero-price markets.

²⁷⁷ See Evans, *Antitrust Economics*, *supra* note 1, at 72 (“Despite the observation that free has a long pedigree, zero-price offers seem to have exploded with the growth of the web-based economy.”); see also Newman, *Copyright Freeconomics*, *supra* note 21, at 1437 (“Today, the array of legitimate, ‘professional’ content that is accessible at zero or negligible prices is truly incredible.” (footnote omitted)).

²⁷⁸ See generally Newman, *Copyright Freeconomics*, *supra* note 21.

²⁷⁹ See *supra* note 235 and accompanying text (discussing Type II error in this context).

²⁸⁰ HMGs, *supra* note 248, § 1.11.

²⁸¹ *United States v. E.I. du Pont de Nemours & Co.*, 351 U.S. 377, 391 (1956).

²⁸² Posner, *New Economy*, *supra* note 177, at 925.

IV. ANTITRUST LAW IN ZERO-PRICE MARKETS

Given that zero-price markets fall within the ambit of the antitrust laws, the question becomes one of (first) institutional appropriateness and (second) institutional approach. The modern antitrust enterprise correctly proceeds with an awareness of its own limitations.²⁸³

A. *The Role and Efficacy of Antitrust*

Applying antitrust laws to zero-price markets is no straightforward task. The narrow-minded focus on price competition exhibited throughout much of antitrust law's developmental history has yielded analytical frameworks suited only for use in positive-price product markets.²⁸⁴ Zero-price markets fall within the statutory scope of the antitrust laws.²⁸⁵ But what is the role antitrust should play in zero-price marketplaces? And how well can it hope to do so?

In zero-price product markets—as in all markets—the overarching goal of antitrust law is to ensure that firms are incentivized to increase quality, lower costs, or innovate so that consumers ultimately reap welfare benefits.²⁸⁶ Here, though, the primary costs of products to consumers consist of attention and information costs. Antitrust law in zero-price markets should seek primarily to ensure that buyers receive the best possible products while minimizing the attention and information costs buyers must exchange for those products. Again, antitrust accomplishes these goals by protecting the competitive process.

Beliefs about the ability of markets to discipline anticompetitive behavior inform the design of antitrust rules and methodologies. Thus, market features affecting that ability carry important implications regarding the role and efficacy of the antitrust enterprise. As noted above, at least some features of zero-price markets reduce the efficacy of competition.²⁸⁷

²⁸³ See, e.g., Douglas H. Ginsburg & Joshua D. Wright, *Dynamic Analysis and the Limits of Antitrust Institutions*, 78 ANTITRUST L.J. 1, 2 (2012) (“The practical value of proposals . . . must be evaluated with an eye to the institutional limitations that antitrust agencies and courts face when engaged in predictive fact-finding.”).

²⁸⁴ Many would argue that some antitrust methodologies are poorly suited even for positive-price markets. For an example of this argument, see Louis Kaplow, *Why (Ever) Define Markets?*, 124 HARV. L. REV. 437 (2010).

²⁸⁵ See *supra* Section III.D.

²⁸⁶ See 1 PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW: AN ANALYSIS OF ANTITRUST PRINCIPLES AND THEIR APPLICATION ¶ 100a (4th ed. 2013) (“[T]he principal objective of antitrust policy is to maximize consumer welfare by encouraging firms to behave competitively . . .”).

²⁸⁷ See *supra* Section III.B.

Consequently, much of the criticism directed at antitrust enforcement in high-technology markets, including many zero-price markets, loses some of its force. This criticism is frequently premised in part on the influential error-cost framework popularized by Judge Frank Easterbrook.²⁸⁸ Error-cost analysis, as employed by conservative courts and scholars, assumes that “the economic system corrects monopoly more readily than it corrects judicial errors.”²⁸⁹ This assumption leads to the conclusion that false positives (i.e., courts wrongly condemning benign behavior) impose greater societal costs than false negatives (i.e., courts failing to condemn anticompetitive behavior).²⁹⁰ This is because markets have no mechanism for correcting a judicial ruling that wrongly condemns benign behavior and thereby chills potentially beneficial behavior by other firms. Markets supposedly are, however, ready and able to correct judicially unchecked anticompetitive behavior.

The strength and validity of that core assumption, as well as its practical ramifications for designing antitrust enforcement mechanisms, depend on the efficacy of competition—that is, how efficiently competitive processes are able to achieve pro-consumer outcomes. Competition in zero-price markets is likely not as efficacious as competition in the archetypical markets at the heart of early antitrust law and theory.²⁹¹ Where calls for antitrust enforcers to be exceedingly cautious when—or even refrain entirely from²⁹²—attempting to improve consumer welfare in zero-price markets depend on the assumption that competition will quickly and efficiently cure anticompetitive conduct, these calls should be viewed with skepticism.

²⁸⁸ See, e.g., Geoffrey A. Manne & Joshua D. Wright, *Innovation and the Limits of Antitrust*, 6 J. COMPETITION L. & ECON. 153, 156 (2010) (“The first weapon is the error-cost framework, which owes its intellectual foundation to Easterbrook’s article, and, we claim, contrary to some recent critics and agency authorities, is crucial to identifying optimal antitrust rules in the New Economy.”). As Jonathan Baker points out, the framework “was first employed in the law and economics literature during the 1970s and introduced into mainstream antitrust scholarship by Paul Joskow and Alvin Klevorick in 1979.” Jonathan B. Baker, *Taking the Error out of “Error Cost” Analysis: What’s Wrong with Antitrust’s Right*, 80 ANTITRUST L.J. 1, 4 (2015) (footnote omitted).

²⁸⁹ Frank H. Easterbrook, *The Limits of Antitrust*, 63 TEX. L. REV. 1, 15 (1984).

²⁹⁰ In the context of dominant-firm conduct, the Antitrust Division has come quite close to espousing this view. See U.S. DEP’T OF JUSTICE, COMPETITION AND MONOPOLY: SINGLE-FIRM CONDUCT UNDER SECTION 2 OF THE SHERMAN ACT 17 (2008) (“Some believe as a general rule that, in the section 2 context, the cost of false positives is higher than the cost of false negatives.”).

²⁹¹ See *supra* Sections III.A-B.

²⁹² See, e.g., Daniel F. Spulber, *Unlocking Technology: Antitrust and Innovation*, 4 J. COMPETITION L. & ECON. 915, 965-66 (2008). Spulber concludes that “[m]arkets can be expected to guide the adoption of technology efficiently,” that “there are no market failures in technology adoption,” and that “[g]overnment agencies cannot expect to replicate or improve upon private sector knowledge.” *Id.*

Yet it is equally true that antitrust enforcers should not “rush in where Angels fear to tread.”²⁹³ Some of the market features that frustrate customer attempts to compare costs in zero-price markets are equally frustrating to antitrust analysts.²⁹⁴ The proper approach is one that is cautiously and idiosyncratically tailored to the relevant market(s); is grounded in actual empirical evidence; and relies only upon those theories that, as tested against available data, offer the greatest predictive power.²⁹⁵ With regards to error costs, this approach would not entirely discount the risks of false positives—as former Assistant Attorney General Christine Varney seemed to do in stating that “[t]here is no such thing as a false positive.”²⁹⁶ Nor, however, would it ignore the risks of underenforcement, particularly given that competitive forces may be less effective remedies for anticompetitive behavior in zero-price markets than elsewhere. It would also discount the incorrect assumptions that previously drove lopsidedly conservative applications of the error-cost framework²⁹⁷—which ought to be ideologically neutral. Finally, it would take into account the unique effects zero prices can have on human consumer behavior.²⁹⁸

²⁹³ POPE’S AN ESSAY ON CRITICISM 25 (John Sargeant ed., Oxford: Clarendon Press 1909) (1711) (emphasis omitted).

²⁹⁴ See *supra* notes 186–90 and accompanying text.

²⁹⁵ This draws from Joshua Wright’s “evidence-based antitrust” approach, which entails in part reliance upon “a principle embraced by virtually all antitrust observers: a commitment to testing economic theories with economic knowledge and empirical data to support those theories with the best predictive power.” Joshua D. Wright, *Abandoning Antitrust’s Chicago Obsession: The Case for Evidence-Based Antitrust*, 78 ANTITRUST L.J. 241, 242–43 (2012). As explained above, however, it would likely depart at least somewhat from Wright’s version of error-cost analysis.

²⁹⁶ Sean Gates, *Obama’s Antitrust Enforcers: What Can We Expect?*, ANTITRUST SOURCE, Apr. 2009, at 1, 2, http://www.americanbar.org/content/dam/aba/publishing/antitrust_source/Apr09_Gates_4_28f.authcheckdam.pdf [<http://perma.cc/G8NX-4ZE6>]. Varney went on to observe that, “at least in [her] own experience, there is not a dominant incumbent who hasn’t done something that was lawful because they were afraid that it might be reviewed by DOJ or a state attorney general or the FTC.” *Id.* Interpreted conservatively, Varney was not literally claiming that false positives do not exist. Rather, the argument was that antitrust enforcers ought not factor the risk of false positives into their decisionmaking. See *id.* (“I think the more people in the bar start rejecting this idea of false positives the better off we’re going to be.”).

²⁹⁷ See Baker, *supra* note 288, at 4–7. Baker specifically points first to erroneous assumptions about markets: that markets are always (quickly) self-correcting via entry, that oligopolies compete vigorously, that monopolies create incentives for innovation, that monopolists can obtain only a single monopoly profit, and that practices common in competitive markets can never be anticompetitive. *Id.* at 7–23. Baker also highlights incorrect assumptions regarding institutions: that false positives are more durable than false negatives, that competitors frequently manipulate antitrust agencies into making anticompetitive enforcement decisions, that courts are incapable of identifying harmful exclusionary conduct, and that private antitrust enforcement can run unchecked by courts. *Id.* at 23–36.

²⁹⁸ See *supra* subsection III.B.2.

B. *The Zero-Price Effect and Consumer Welfare*

Zero prices do not necessarily tend to yield massive (or any) consumer welfare surplus. Contrary claims have, however, been made. Evans points to “the vast amount of consumer surplus that likely results from products and services offered for free.”²⁹⁹ Gal and Rubinfeld posit that “[m]ore often than not, free goods and services provide real benefits to consumers and are clearly pro-competitive.”³⁰⁰ Industry analyst Bill Gurley states, “One might yearn to suggest that there is a market [failure] here that should be investigated by some government entity, but let us not forget that the consumer is not harmed here—in fact far from it.”³⁰¹ Google’s senior competition counsel, Dana Wagner, urges the public to “[k]eep in mind that competition laws are concerned with what’s best for consumers, not for competing companies, and there’s little doubt that from a consumer perspective, free products are usually a great thing.”³⁰²

Flowing naturally from this view is the conclusion that courts and enforcement agencies ought to be extremely cautious when applying antitrust law to suppliers of zero-price products. Given modern antitrust law’s generally agreed-upon goal of maximizing consumer welfare,³⁰³ practices that tend to create net consumer surplus are today almost entirely insulated from antitrust scrutiny.³⁰⁴ Claims alleging anticompetitive product design provide one example of this cautious approach. True product innovation often yields enormous benefits to consumer welfare, total welfare, or both.³⁰⁵ Recognizing this, many courts have grown quite wary of

²⁹⁹ Evans, *Antitrust Economics*, *supra* note 1, at 73.

³⁰⁰ Gal & Rubinfeld, *supra* note 48, at 3.

³⁰¹ Bill Gurley, *The Freight Train That Is Android*, ABOVE THE CROWD (Mar. 24, 2011), <http://abovethecrowd.com/2011/03/24/freight-train-that-is-android/> [<http://perma.cc/MZ7A-ADZ5>].

³⁰² Dana Wagner, *Is Free an Antitrust Issue?*, GOOGLE PUB. POL’Y BLOG (July 10, 2009), <http://googlepublicpolicy.blogspot.com/2009/07/is-free-antitrust-issue.html> [<http://perma.cc/6P6T-S7BH>].

³⁰³ See *supra* note 286 and accompanying text.

³⁰⁴ Cf., e.g., Fiona Scott-Morton, Deputy Assistant Att’y Gen., U.S. Dep’t of Justice, Antitrust Div., Antitrust Enforcement in High-Technology Industries: Protecting Innovation and Competition, Remarks Before the 2012 New York State Bar Association Annual Antitrust Forum 8-9 (Dec. 7, 2012), <http://www.justice.gov/atr/file/518956/download> [<http://perma.cc/K3H3-R3LG>] (“[G]iven the greater degree of uncertainty present when assessing dynamics harms, the [DOJ Antitrust] Division emphasizes the importance of a fact-intensive inquiry into the transaction and the relevant markets . . .”).

³⁰⁵ Many contend that such benefits vastly outweigh those produced by static price competition, which was the primary focus of early antitrust case law and scholarship. See Damon C. Andrews & John M. Newman, *Personal Jurisdiction and Choice of Law in the Cloud*, 73 MD. L. REV. 313, 350 (2013) (citing Ashutosh Bhagwat, *Unnatural Competition?: Applying the New Antitrust Learning to Foster Competition in the Local Exchange*, 50 HASTINGS L.J. 1479, 1480 (1999)); J. Gregory Sidak & David J. Teece, *Dynamic Competition in Antitrust Law*, 5 J. COMPETITION L. &

false positives with regards to product design claims and have placed a high burden on plaintiffs who argue that product designs violate antitrust laws.³⁰⁶ If it were true that zero-price products necessarily create massive consumer welfare benefits, it would follow that antitrust institutions should proceed with caution (if at all) in analyzing claims alleging harm in zero-price markets.

The zero-price welfare argument seems, reflexively, to make sense. In syllogistic form, it might run as follows: (1) zero-price products convey benefits to consumers, and (2) consumers reap those benefits without incurring any costs, therefore (3) zero-price markets create consumer welfare gains. A proponent might even point out that such gains would be infinite in relation to the costs to consumers.

The logical flaw in this argument lies in its minor premise. Consumers of zero-price products pay for those products, at least when the zero-price products are offered as part of a sustainable business model.³⁰⁷ In the absence of a tying arrangement involving some positive-price product, consumers generally pay with their attention, information, or both.³⁰⁸ In tying arrangements, consumers may also pay with money. As to either category, there is no principled reason to believe that zero-price transactions—the result of bilateral agreements whereby both parties surrender something of value as part of the exchange—necessarily create any more consumer welfare than transactions involving positive prices.³⁰⁹

At least as to individual consumers, there remains the question of the consequences of the zero-price effect.³¹⁰ On the one hand, individuals appear to behave as if zero prices, as compared to positive prices, represent not only decreased costs, but also increased benefits. Perhaps this seemingly irrational

ECON. 581, 603 (2009) (“Industry after industry can demonstrate gains from dynamic (innovation-driven) competition that overshadow the gains when competition is present but innovation is absent.”).

³⁰⁶ See, e.g., *Berkey Photo, Inc. v. Eastman Kodak Co.*, 603 F.2d 263, 285-87 (2d Cir. 1979) (requiring only evidence of some innovation or improvement—even in the face of proven disadvantages—for a product design to be held lawful); see also Newman, *Anticompetitive Product Design*, *supra* note 29, at 714-15 (“For over three decades, district and appellate courts have wrestled with how to approach claims that firms have engaged in anticompetitive, design-related behavior. A wide-ranging variety of analyses have been used, though due to the fear of stifling innovation . . . , courts have on the whole tended to be quite deferential to defendants.”).

³⁰⁷ See *supra* Section I.A.

³⁰⁸ Even in instances of promotional zero-pricing, consumers are generally paying with their attention. See *supra* subsection II.C.2.b.ii.

³⁰⁹ Gal and Rubinfeld recognize that “[a]n analysis which focuses on the free good alone would often lead to the simplistic conclusion that the free good creates positive welfare effects, since the consumer receives the product at a price which does not even cover production and distribution costs.” Gal & Rubinfeld, *supra* note 48, at 38.

³¹⁰ See *supra* Section III.C.

behavior allows them to accrue systematically some form of consumer surplus that a rational (nonhuman) firm would not receive.³¹¹ Additionally, as Gal and Rubinfeld point out, “[T]he free provision of goods . . . enables firms to increase demand for their product, thereby reaching a larger number of consumers.”³¹² This acceleration of the product-diffusion process offers some benefits.³¹³

On the other hand, however, zero prices often induce systematically inefficient consumption choices.³¹⁴ To the extent that such systematic inefficiencies occur, they would—for purposes of deciding whether zero prices ought to act as an initial “thumb on the scale” in favor of antitrust defendants—counterbalance any uniquely human consumer welfare gains. The degree to which such inefficiencies do so depends on the degree to which irrational overconsumption takes place in the particular markets under consideration. Confidently answering that question is a complex and, in some (perhaps most) cases, presently unworkable problem. Empirical literature is scant and, as to many industries, nonexistent. Yet those same criticisms could be made of precisely measuring any potential consumer welfare gains. For present purposes, it suffices to say that behavioral economics should counsel neither strongly for nor against a welfare-based presumption in favor of defendants offering zero-price products. Without a persuasive argument to support it, such a presumption is unwarranted.³¹⁵

C. *Antitrust and Privacy*

At this point, some have raised the objection that privacy law already occupies the field.³¹⁶ Applying antitrust law to zero-price markets based on

³¹¹ See Andrews, *supra* note 218, at 185 (claiming that in the “new copyright freeeconomy . . . wealth exists in the form of social status”).

³¹² Gal & Rubinfeld, *supra* note 48, at 14.

³¹³ See *id.* (“This, in turn, enables [firms] to learn more quickly about limitations or potentials of the product and fix [problems] more quickly, and potentially achieve scale economies, or strengthen the product’s network effects . . .”).

³¹⁴ See *supra* Section III.C.

³¹⁵ Gal & Rubinfeld reach the opposite conclusion by pointing to, among other things, the increase in quality yielded by individuals contributing to free and open-source software without a profit motive. Gal & Rubinfeld, *supra* note 48, at 14. The present focus, however, is on traditional, profit-motivated marketplace behavior. Gal and Rubinfeld also point to the possibility that new entrants can use “free goods” to “overcome high entry barriers into markets.” *Id.* at 13-14. To the extent new entrants do so, however, it may be more that they are exploiting irrational consumers (an inefficiency) than that they are somehow better situated than incumbents to offer zero prices—indeed, the inverse seems more likely true.

³¹⁶ See, e.g., Darren S. Tucker & Hill B. Wellford, *Big Mistakes Regarding Big Data*, ANTITRUST SOURCE, Dec. 2014, at 1, 10 (“The antitrust laws were not intended to offer a solution to regulatory- and privacy-based agendas.”).

the presence of information costs, the argument runs, would be an inappropriate usurpation of territory traditionally occupied by privacy law; thus, antitrust scrutiny predicated on these grounds would be at best duplicative and at worse harmful. Privacy law as it relates to information-gathering practices has certainly captured the attention of popular presses, legislatures, and scholars.³¹⁷ Seemingly intrusive marketing practices,³¹⁸ sweeping government surveillance programs,³¹⁹ and easily breached data storage centers³²⁰ all contribute to a sense of eroding privacy. Society at large perceives these developments as “creepy.”³²¹ As a 2014 Pew Research survey report concludes, “There is little confidence in the security of common communications channels, and those who have heard about government surveillance programs are the least confident.”³²²

This objection is based on a misguided understanding of both the privacy–antitrust relationship and marketplace behavior.³²³ Privacy law is concerned with the right of individuals to “control the ways in which personal information is obtained, processed, distributed, shared, and used by any other entity.”³²⁴ More specifically, information-related privacy violations

³¹⁷ For a brief overview of the status of the debate at the turn of the millennium, see Joseph Phelps et al., *Privacy Concerns and Consumer Willingness to Provide Personal Information*, 19 J. PUB. POL'Y & MARKETING 27, 27–28 (2000).

³¹⁸ See, e.g., Charles Duhigg, *Pst, You in Aisle 5*, N.Y. TIMES, Feb. 16, 2012 (Magazine), at 30 (relating how Target developed an algorithm that accurately identified a teenage daughter as pregnant—before her own father knew).

³¹⁹ James Risen & Laura Poitras, *N.S.A. Examines Social Networks of U.S. Citizens*, N.Y. TIMES, Sept. 29, 2013, at A1.

³²⁰ Target's recent data breach provides another recent example: in late 2013 and early 2014, details emerged surrounding a massive data breach involving shoppers' personal information. The hacked data included personally identifying information and encrypted PINs from debit cards. The software used to hack Target's system was apparently available for sale to the public for just \$1800. Paula Rosenblum, *The Target Data Breach Is Becoming a Nightmare*, FORBES (Jan. 17, 2014, 2:22 PM), <http://www.forbes.com/sites/paularosenblum/2014/01/17/the-target-data-breach-is-becoming-a-nightmare/> [<http://perma.cc/4BVH-S6CB>].

³²¹ See, e.g., Omer Tene & Jules Polonetsky, *A Theory of Creepy: Technology, Privacy, and Shifting Social Norms*, 16 YALE J.L. & TECH. 59, 61 (2013) (“There seem to be several categories of corporate behavior that customers and commentators have begun to label ‘creepy’ for lack of a better word.”). *But see id.* at 64 (“[P]erceptions of social-media-based customer service are clearly ambivalent.”).

³²² MADDEN, *supra* note 100, at 4. The report noted, however, that “[a]t the same time that Americans express these broad sensitivities toward various kinds of information, they are actively engaged in negotiating the benefits and risks of sharing this data in their daily interactions with friends, family, co-workers, businesses and government.” *Id.* at 7.

³²³ Cf. Hagel & Rayport, *supra* note 101, at 55 (“[T]o view such [customer] rebellions [against information-gathering practices] as concerns about privacy is to misunderstand them.”).

³²⁴ Alessandro Acquisti et al., *Preface* to DIGITAL PRIVACY: THEORY, TECHNOLOGIES, AND PRACTICES, at ix (Alessandro Acquisti et al. eds., 2008).

occur where individuals *involuntarily* share information.³²⁵ Antitrust law is perfectly inverse: it is concerned only with *voluntary* exchanges.³²⁶ Antitrust courts, enforcers, and theorists speak of market or monopoly “power,” but they do not mean the power to force counterparties to transact against their will.³²⁷ Even a monopolist or cartel faces a downward-sloping demand curve and cannot charge its customers infinite amounts.³²⁸ The customers who transact with a monopolist or cartel do so of their own volition and are individually made better off by the exchange.³²⁹ If customers could act together, they could refuse to deal on the monopolist’s or cartel’s unfavorable terms, successfully neutralizing the upstream market power.³³⁰

In zero-price markets, privacy law is concerned with ensuring that individuals’ information remains confidential when its release or use was not bargained for as part of a voluntary exchange.³³¹ Antitrust law does not concern itself with such harm. Instead, modern antitrust law seeks to protect the competitive process, thereby promoting consumer welfare.³³² The right protected is not Warren and Brandeis’s “general right of the

³²⁵ See generally Daniel Solove, *A Taxonomy of Privacy*, 154 U. PA. L. REV. 477, 484-85 (2006) (prefacing a proposed taxonomy of privacy violations with the observation that “[i]f a person consents to most of these activities, there is no privacy violation” (emphasis added)). Alternatively, a tort response could address “invasive consumer data profiling”—but again, this proposal targets “collecting and selling or leasing an extensive consumer data profile *without consumer consent*.” Andrew J. McClurg, *A Thousand Words Are Worth a Picture: A Privacy Tort Response to Consumer Data Profiling*, 98 NW. U. L. REV. 63, 69 (2003) (emphasis added).

³²⁶ Jenny B. Wahl, *Introduction to ECONOMIC ANALYSIS OF CONTRACT LAW, ANTITRUST LAW, AND SAFETY REGULATIONS*, at vii (Jenny B. Wahl ed., 1998) (discussing how antitrust laws provide oversight of voluntary exchanges between producers and consumers).

³²⁷ See Einer Elhauge, *How Italian Colors Guts Private Antitrust Enforcement by Replacing It with Ineffective Forms of Arbitration*, 38 FORDHAM INT’L L.J. 771, 774 (2015) (“[V]irtually all antitrust violations require the consent of the defendant’s customers. If defendants enter into a cartel or merger that raises prices, buyers could in theory defeat it by refusing to pay . . . [Likewise, e]xclusionary conduct works only if buyers consent to it.”).

³²⁸ See, e.g., *supra* note 156 and accompanying text.

³²⁹ Cf. *Verizon Commc’ns Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 409 (2004) (noting that the defendant monopolist in *Aspen Skiing Co. v. Aspen Highlands Skiing Corp.*, 472 U.S. 585, 608 (1985), terminated a “voluntary” and “thus presumably profitable” course of dealing (emphasis omitted)).

³³⁰ See Elhauge, *supra* note 327, at 774-75 (“[B]uyers in markets have a collective action problem. If buyers acted together, then they would refuse to consent to conduct that harms them all. But acting individually, each buyer has incentives to agree to inflated prices or exclusionary conditions . . . The whole reason we have antitrust laws is to provide a collective action solution, via statute, to our collective action problem.”).

³³¹ See Maureen K. Ohlhausen & Alexander P. Okuliar, *Competition, Consumer Protection, and the Right [Approach] to Privacy*, 80 ANTITRUST L.J. 121, 154 (2015) (“[Consumer protection laws] focus on the reasonable consumer and ensuring individual consumers get the benefit of the bargain.”).

³³² See *supra* Sections III.B-C.

individual to be let alone.”³³³ Antitrust law protects the right to the fruits of a competitive marketplace: in zero-price markets, the right to receive the best possible products in exchange for the least possible amount of information. Abandoning oversight of zero-price markets to privacy law simply because information (instead of money) is the relevant currency would be a grave error.³³⁴ The objection risks harming the very consumers whom privacy law is meant to protect,³³⁵ and it should be rejected accordingly.

CONCLUSION

“Free” products are not free. They are, instead, exchanged within markets. Confronted as it is by the critical and growing importance of zero-price products to the broader economy, the antitrust enterprise must take up its congressionally mandated role: providing oversight of competition in zero-price markets. Already, massive consumer welfare harms have likely resulted from the collective failure to do so. Yet this past failure need not dictate the future. Recognizing that antitrust law encompasses zero-price markets is long overdue. This Article begins the correction process by laying the foundations necessary for a coherent and rational antitrust policy.

³³³ Samuel D. Warren & Louis D. Brandeis, *The Right to Privacy*, 4 HARV. L. REV. 193, 205 (1890).

³³⁴ Professor Pasquale argues that markets based heavily on information-cost extraction are too inherently dysfunctional for antitrust—with its normative aim of safeguarding competitive markets—to be of use. Frank Pasquale, *Privacy, Antitrust, and Power*, 20 GEO. MASON L. REV. 1009, 1015-16 (2013). Yet there is a competitive process to be protected in zero-price markets, though it is likely less robust than in some more traditional markets. Again, no market is perfect, and Congress mandated that U.S. antitrust laws have very broad applicability. *See supra* Section II.A.

³³⁵ Peter Swire, *Protecting Consumers: Privacy Matters in Antitrust Analysis*, CTR. FOR AM. PROGRESS (Oct. 19, 2007), <https://www.americanprogress.org/issues/regulation/news/2007/10/19/3564/protecting-consumers-privacy-matters-in-antitrust-analysis/> [<https://perma.cc/YM5D-BYLX>]. Swire observes that “consumers ‘pay’ more for a good if greater privacy intrusions are contrary to their preferences. Under standard economic analysis, and standard antitrust analysis, harm to consumer preferences should be part of the regulatory homework for the competition agencies—such harms should be considered along with other harms and benefits from a proposed merger.” *Id.*; *see also supra* Section III.C.