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John M. Newman
University of Miami School of Law, johnnewman@law.miami.edu

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Recommended Citation
John M. Newman, *Antitrust in Zero-Price Markets: Applications*, 94 *Wash. U. L. Rev.* 49 (2016).

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ANTITRUST IN ZERO-PRICE MARKETS: APPLICATIONS

JOHN M. NEWMAN*

ABSTRACT

"Free" products have exploded in popularity along with widespread Internet adoption—but many of them are not truly free. Customers often trade their attention or personal information to access zero-price products. This exchange dynamic brings zero-price markets within the scope of antitrust law. But despite the critical role that such markets now play in modern economies, the antitrust enterprise has largely failed to account for their unique attributes.

In response, this Article undertakes two primary tasks. The first is to address particular areas of current antitrust doctrine that require revision or reinterpretation in the face of zero prices. Topics addressed include consumer standing (can attention or personal information qualify as "property" under the Clayton Act?), market definition (is the SSNIP-based hypothetical-monopolist test still workable?), market power (can the traditional emphasis on "power to control price" be refocused on more relevant modes of competition?), defenses (is there a viable "free goods" defense?), and damages (can attentional or informational harms be quantified with the requisite degree of accuracy?).

The second task is to examine applications of antitrust law to particular types of strategic conduct. Toward this end, the Article surveys and critiques the existing antitrust case law involving zero-price markets. Though this analysis reveals some flawed judicial reasoning, it also identifies an encouraging trend toward honest attempts to grapple with the distinctive difficulties posed by zero-price markets.

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* Assistant Professor, University of Memphis Cecil C. Humphreys School of Law. A portion of this draft was written while the author was practicing as a Trial Attorney with the U.S. Department of Justice, Antitrust Division. The views expressed herein are solely the author's and do not necessarily reflect those of the Department of Justice. Any discussions of matters in which the author represented the United States reflect solely information gathered from public sources and do not reveal, relate to, or draw upon confidential information. Many thanks for their comments on various drafts of this paper are due to Herbert Hovenkamp, Gregory J. Werden, William Kratzke, Boris Mamlyuk, Jens Prüfer, Peter Swire, Leah McCoy, Susan Musser, and Damon C. Andrews. Thanks also to Devon C. Muse and Gale B. Robinson, Jr., for providing excellent research assistance.

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I. INTRODUCTION

"Free" products have exploded in popularity. Though often labeled as such, many of these products are not free.[1] Social networks, web-based email, radio, television programs, news services, mapping programs, online search—all are now widely offered to customers with no prices attached. Yet many providers of these products are not acting altruistically; in fact, zero-price products have grown so profitable that their suppliers boast a combined market capitalization of well over $1 trillion.[2] Customers are exchanging something of value—most commonly their attention to advertisements or their personal information—in order to access zero-price products.[3]

But despite the critical role that zero-price products now play in modern economies, analysts have failed to adequately account for the unique attributes of zero-price markets, leaving the antitrust enterprise woefully unprepared to play its traditional role of safeguarding marketplace competition. This failure has already caused substantial harm to consumer welfare; left unchecked, it will continue to do so.

This Article seeks to address that failure. The choice of title was deliberate: to call zero-price products "free" is to beg the question. The discussion that follows builds on the fundamental observation that "free" products often are not free.[4] Zero-price markets are a part—and, *a fortiori*, an increasingly vital part—of the "trade or commerce" Congress intended to regulate under the antitrust laws. Yet, antitrust institutions are, at best, only beginning to wrestle with the unique issues presented by zero-price transactions.

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1. In common usage, "free" denotes zero cost. *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.").

2. *See, e.g.*, *Market Capitalization of the Largest U.S. Internet Companies as of March 2016*, STATISTICA, http://www.statista.com/statistics/209331/largest-us-internet-companies-by-market-cap/ (last visited June 2, 2016). Of the ten largest Internet companies listed, seven offered primarily or exclusively zero-price products—and these seven firms alone accounted for over $950 billion in market capitalization.

3. John M. Newman, *Antitrust in Zero-Price Markets: Foundations*, 164 U. PA. L. REV. 149, 165–72 (2015).

4. Some zero-price products are truly free (or as close to free as is realistically possible)—for example, nonprofit organizations like the Wikimedia Foundation provide online services free of charge. *See generally* Michal S. Gal & Daniel L. Rubinfeld, *The Hidden Costs of Free Goods: Implications for Antitrust Enforcement* 8 (N.Y. Univ. Law and Econ. Working Papers, Paper No. 14-44, 2015), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2529425 (explaining that an array of charitable, social, reputational, and even selfish motives underlie truly free product offerings).

Part II of this Article identifies and addresses several foundational aspects of the antitrust enterprise that are challenged by zero-prices. It begins by establishing that consumers of zero-price products may have standing to sue under the Clayton Act, which requires injury to a plaintiff's "business or property."[5] The primary argument here is descriptive (though likely not uncontroversial); it employs textual, precedential, and purposive tools of analysis to conclude that, for the narrow purposes of Clayton Act standing, "property" includes information and attention. As a corollary, such consumers may also suffer antitrust injury, another element required for standing. Thus, courts ought to interpret and apply standing requirements so as to include consumers of zero-price products. This conclusion depends, for normative force, primarily on deontological, rather than utilitarian, grounds.

Part II then turns to market definition and market power. The most commonly used tests for both elements depend on the presence of positive prices. As a result, existing case law suggests reason for concern—some courts have fallen into fallacious reasoning when attempting to define markets and measure power absent positive prices. But, as Part II explains, the frameworks underlying the traditional tests can be adapted to zero-price markets. Drawing on a robust body of behavioral economics literature, Part II also observes that analyses of market definition and market power should account for the power of the Zero-Price Effect.

Part II concludes by addressing defenses and damages. It demonstrates the unviability, as a matter of both antitrust law and antitrust economics, of the "free goods defense" already raised by at least one defendant. Part II also explores the knotty issue of damages calculations. Consumer psychology research reveals that stated preferences are highly unreliable vis-à-vis information and attention costs. As a result, Part II urges caution when stated preferences are proffered as a measure of damages in zero-price markets.

Part III surveys and critiques the extant case law involving zero-price markets. It is organized according to well-recognized categories of strategic conduct: horizontal competitor agreements, tying, exclusive dealing, etc. In part, the discussion is purely descriptive; it is the first attempt to gather and report all existing antitrust precedent involving zero-price markets. The discussion is, by turns, also prescriptive: it not only evaluates the competence of judges' rulings and reasoning, but also recommends superior alternatives for use in future cases. Ultimately, this

5. 15 U.S.C. § 15(a) (2012).

critique exposes a mixed bag. Antitrust courts have done much more than mere "hand waving" in the face of zero prices.[6] Yet—perhaps unsurprisingly, given the general lack of guidance from analysts—they have often fallen into error. Thus, Part IV briefly concludes with a call to confront head-on the process of modernizing the antitrust enterprise to account for zero-price markets.

II. THE ANTITRUST ENTERPRISE IN ZERO-PRICE MARKETS

Zero-price markets pose substantial difficulties for several vital elements of antitrust doctrine. The discussion below is organized around the order in which those constituent elements tend to arise in antitrust litigation: standing, followed by market definition and market power, defenses, and remedies.

A. Consumer Standing

Federal antitrust law is enforced two ways: by the U.S. government and by private parties.[7] The U.S. government is authorized to sue any party who has violated the antitrust laws.[8] Private parties, however, must demonstrate that they have standing to sue.[9] Clayton Act § 4, which authorizes private treble-damages recovery, grants standing to "any person who shall be injured in his business or property by reason of anything forbidden in the antitrust laws."[10] To be granted such standing, a private party must prove (1) injury to its "business or property," and (2) that the injury suffered qualifies as "antitrust injury," i.e., the particular type of injury cognizable under federal antitrust law.[11]

1. Are Attention and Information "Property"?

The U.S. government (as well as the rare private plaintiff seeking only injunctive relief)[12] need not satisfy the Clayton Act § 4 "business or

6. *But see* David S. Evans, *The Antitrust Economics of Free*, 7 COMPETITION POL'Y INT'L 71, 72 (2011) ("[T]here is a tendency on the part of companies, authorities, and courts to do more hand waving than serious analysis when they encounter products and services offered for free.").

7. 3 PHILIP E. AREEDA & HERBERT HOVENKAMP ¶ 335 n.1 (3d ed. 2007) ("Everyone other than the federal government falls into the "private" plaintiff category, which thus includes a state attorney general invoking federal antitrust law, whether on behalf of the state or of its citizens.").

8. *See* 15 U.S.C. § 4 (2012).

9. 3 AREEDA & HOVENKAMP ¶ 335a.

10. 15 U.S.C. § 15(a) (2012).

11. *Id.*

12. Private plaintiffs seeking only injunctive relief need not satisfy the "business or property"

property" requirement. Thus, for example, the federal government obtained an injunction against the defendants in *United States v. H & R Block, Inc.*, a case involving (in part) zero-price products,[13] without needing to prove injury to "business or property." Private antitrust plaintiffs, however, almost universally seek treble damages, thereby triggering the business-or-property requirement. Private firms participating in zero-price markets can receive antitrust treble-damages standing by alleging injury to their "business."[14] Individual consumers, however, must rely on the "property" prong of the requirement.[15]

"Property" (for purposes of Clayton Act § 4 standing) includes money. In *Reiter*, a class action brought by consumers against manufacturers of hearing aids,[16] the U.S. Supreme Court held that "[a] consumer whose money has been diminished by reason of an antitrust violation has been injured 'in his . . . property' within the meaning of § 4."[17] Thus, consumers who are overcharged supracompetitive retail prices have antitrust standing, even where the relevant products were for personal use.[18]

In zero-price markets, however, consumers generally pay not with money, but with their attention or information.[19] Consumer standing in

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requirement. Clayton Act § 16, which authorizes injunctive relief, states simply that "[a]ny person . . . shall be entitled to . . . injunctive relief . . . against threatened conduct that will cause loss or damage [by a violation of the antitrust laws under the traditional equitable principles]." 15 U.S.C. § 26 (2012).

13. 833 F. Supp. 2d 36 (D.D.C. 2011).

14. *Cf.* AREEDA & HOVENKAMP, *supra* note 7, ¶ 336 ("[Business] refers to 'commercial interests or enterprises,' although it also embraces nonprofit plaintiffs." (citation omitted)).

15. *Cf. id.* ("Illegally overcharged consumers are injured in their 'property' interest in the price and product quality of an unrestrained, competitive market.").

16. Reiter v. Sonotone Corp., 442 U.S. 330, 335 (1979). Not at issue on appeal was whether the suit would have been barred under the indirect purchaser rule, which forecloses plaintiffs from recovering where they did not purchase the relevant products directly from the defendant(s). *See id.* at 334–37.

17. *Id.* at 339.

18. *Id.* at 337–45.

19. Newman, *supra* note 3, at 152. *But see* Katherine J. Strandburg, *Free Fall: The Online Market's Consumer Preference Disconnect*, 2013 U. CHI. LEGAL F. 95 (2013). Strandburg argues that equating payment via information to payment via money is erroneous:

> The common analogy between online data collection for behaviorally targeted advertising and payment for purchases is seriously misleading. There is no functioning market based on exchanges of personal information for access to online products and services. In a functioning market, payment of a given price signals consumer demand for particular goods and services, transmitting consumer preferences to producers. Data collection would serve as "payment" in that critical sense only if its transfer from users to collectors adequately signaled user preferences for online goods and services. It does not.

Id. at 95. Strandburg convincingly demonstrates that markets involving the exchange of information for desired products are imperfect, and likely very imperfect. But it does not follow from such imperfections that "[t]here is *no* [such] functioning market." *Id.* (emphasis added). Markets exist on a

zero-price markets thus presents a thorny—and, thus far, unanswered—question: Are information and attention "property" for the narrow purposes of antitrust damages standing?[20]

The following analysis suggests that the answer is "yes." Courts have yet to weigh in squarely on the issue.[21] The leading treatise observes briefly that "[n]onpecuniary injuries are not covered."[22] In general, antitrust theorists appear not to have raised or addressed the question in any depth. A number of privacy-law scholars have advanced the argument that personal *information* be treated as property for general legal purposes[23]—there is also, however, "an extensive literature on the problems" of doing so.[24] Against the backdrop of this robust scholarly debate, courts have been uniformly reluctant to treat personal information as property for general legal purposes.[25] Left unexplored by both privacy scholars and courts is the question of whether *attention* should ever be treated as property.

For the narrow purposes of Clayton Act standing, the better reading of "property" is to include information and attention when they are exchanged for the relevant product(s). A preliminary caveat: this Article does not seek to weigh in on the scholarly debate, mentioned above, over

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spectrum, ranging from "perfectly imperfect" to "perfectly perfect." Imperfect competition does not equal zero competition. This argument is addressed more thoroughly in Newman, *supra* note 3.

20. In a state unfair-competition case, a federal district court flatly concluded that "[a] plaintiff's 'personal information' does not constitute property under [California's Unfair Competition Law]." *In re* Facebook Privacy Litig., 791 F. Supp. 2d 705, 714 (N.D. Cal. 2011) (quoting Thompson v. Home Depot, Inc., No. 07cv1058 IEG (WMc), 2007 WL 2746603, at *3 (S.D. Cal. Sept. 18, 2007)).

21. Interestingly (albeit tangentially), firms' databases may be regarded as personal property for purposes of secured transactions, even if the data is not protected under copyright or trade-secret law. *See, e.g.*, In re Levitz Ins. Agency, Inc., 152 B.R. 693, 697 (Bankr. D. Mass. 1992); Xuan-Thao N. Nguyen, *Collateralizing Privacy*, 78 TUL. L. REV. 553, 580–81 (2004).

22. 2A AREEDA & HOVENKAMP, *supra* note 7, ¶ 345, at 156. This may be referring only to the personal-injury scenarios contemplated in, *e.g.*, *Chadda v. Burcke*, 180 F. App'x 370 (3d Cir. 2006).

23. *See, e.g.*, Christopher Rees, *Tomorrow's Privacy: Personal Information as Property*, 3 INT'L DATA PRIVACY L. 220, 220–21 (2013); Jamie Lund, *Property Rights to Information*, 10 NW. J. TECH. & INTELL. PROP. 1 (2011); Lawrence Lessig, *The Architecture of Privacy*, 1 VAND. J. ENT. L. & PRAC. 56, 63–65 (1999); Richard S. Murphy, *Property Rights in Personal Information: An Economic Defense of Privacy*, 84 GEO. L.J. 2381, 2383 (1996).

24. Jeffrey M. Skopek, *Anonymity, the Production of Goods, and Institutional Design*, 82 FORDHAM L. REV. 1751, 1800 n.227 (2014) (citing examples).

25. *See* Lauren Henry Scholz, *Privacy as Quasi-Property*, 101 IOWA L. REV. 1113, 1121 (2016). Scholz posits that "privacy as property has taken hold in the courts," supporting the statement by noting two privacy-related torts that "are routinely handled as the property interest 'right of publicity' in several jurisdictions." *Id.* But, as Scholz recognizes, "the right of publicity is not relevant to all forms of privacy." *Id.* Moreover, the negative implication is that by recognizing only those two types of privacy harms as touching upon property rights, even the subset of courts that grant this narrow recognition are simultaneously declining to recognize general property rights over personal information.

whether individuals possess general property rights in their information, nor does it seek to begin such a debate over whether individuals should possess such rights in their attention. The scope of the present claim is restricted to Clayton Act standing.

It is, to be sure, unlikely that Congress contemplated either information or attention when enacting the Clayton Act in 1914. Then, as now, neither was treated as such for broader legal purposes. Under a strictly originalist interpretation, therefore, zero-price consumers would likely lack standing to seek damages under the Clayton Act.[26]

The U.S. Supreme Court, however, has not employed such an approach in interpreting the Clayton Act's grant of standing. Reasoning that the statute serves an "expansive remedial purpose," the Court has refused to take a "technical or semantic approach" in interpreting it.[27] Rather, the Court has identified the task and available tools as follows:

> The purpose, the subject matter, the context, the legislative history, and the executive interpretation of the statute are aids to construction. . . . [W]e are to read the statutory language in its ordinary and natural sense, and if doubts remain, resolve them in the light . . . of the policy intended to be served by the enactment [and] by all other available aids to construction.[28]

Using this holistic approach to interpretation in the *Reiter* case, the Court observed that "the word 'property' has a naturally broad and inclusive meaning. In its dictionary definitions and in common usage 'property' comprehends anything of material value owned or possessed."[29] In fact, lower courts have read "property" broadly enough to include interests *not* commonly thought of as "owned or possessed," for example, a labor union's opportunity to obtain members[30] or the opportunity to work as an

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26. *Cf.* Martin H. Redish & Theodore T. Chung, *Democratic Theory and the Legislative Process: Mourning the Death of Originalism in Statutory Interpretation*, 68 TUL. L. REV. 803, 805 (1994) ("[O]riginalist interpretive models treat statutes as commands that emanate from the legislative branch. The judge's role as interpreter is limited to deciphering these commands and applying them to particular cases.").

27. Pfizer, Inc. v. Gov't of India, 434 U.S. 308, 313 (1978).

28. United States v. Cooper Corp., 312 U.S. 600, 605 (1941).

29. Reiter v. Sonotone Corp., 442 U.S. 330, 338 (1979).

30. *E.g.*, Int'l Ass'n of Heat & Frost Insulators & Asbestos Workers v. United Contractors Ass'n, 483 F.2d 384, 398 (3d Cir. 1973) ("Since their income is derived from the dues of their members, it would be contrary to common sense to say that a right to acquire members is not a property right of a labor union.").

employee at a rival firm.[31] Even though such opportunities "may not be property in the ordinary sense,"[32] they may support Clayton Act standing.

Given such a broad reading, the business-or-property "limiting words are of little effect today."[33] As the leading treatise explains, "*Reiter* . . . made plain that the 'business or property' requirement is virtually always satisfied provided there is some kind of injury that can properly be characterized as economic."[34] Zero-price markets involve commerce and exchange of the type that can give rise to economic gains from trade.[35] Such markets can, therefore, allow economic harm that is structurally identical to the types of harms traditionally cognizable under the antitrust laws. Consumers who have incurred monetary overcharges suffer harm to their "'property' interest in the price and product quality of an unrestrained, competitive market."[36] Like all consumers, those who use zero-price products have a "property interest" in the fruits of a competitive marketplace. That interest can suffer economic injury.[37] As a result, existing precedent disfavors a categorical denial of standing to consumers of zero-price products.

Moreover, as the *Reiter* Court observed, "'property' comprehends anything of material value owned *or possessed*."[38] Information and attention have come to hold "material value." And consumers may "possess" their information or attention, even assuming they do not "own" those assets as a general matter of property law.[39] One might well ask: If consumers do not initially possess their information or attention, who does? Consumers possess their attention, and at least some types of their information, until the moment they trade these assets to firms in exchange for valuable products. Pursuing the transaction further through the chain of distribution bolsters this conclusion. For example, once a firm has collected and stored personal information in its servers, the firm—which can often exclude third parties from accessing that particular data while it is under the firm's control—would seem to possess that information. Such

31. Nichols v. Spencer Int'l Press, Inc., 371 F.2d 332, 334 (7th Cir. 1967).
32. *Id.*
33. 3 AREEDA & HOVENKAMP, *supra* note 7, ¶ 335c1.
34. *Id.* ¶ 336.
35. *See* Newman, *supra* note 3.
36. 3 AREEDA & HOVENKAMP, *supra* note 7, ¶ 336.
37. *See infra* Part II.A.2 (discussing antitrust injury).
38. Reiter v. Sonotone Corp., 442 U.S. 330, 338 (1979) (emphasis added).
39. *See supra* notes 23–25 and accompanying text (discussing the debate over whether information is "property" for general legal purposes).

firms often sell data to third parties. Again, one might ask: If the seller never possessed the information, what was sold?

Finally, the Court instructs that where interpretation of the Clayton Act seems doubtful, issues should be resolved "in the light . . . of the policy intended to be served by the enactment."[40] The antitrust laws are meant to remedy harm to the competitive process resulting from the creation, enhancement, or abuse of market power.[41] Because the enhancement of power in zero-price markets can—and has—resulted in harm to competition and consumers,[42] an inclusive reading of "property" would further that policy. Thus, courts applying the Clayton Act's grant of standing should interpret "property" so as to include attention and information.

2. Antitrust Injury

Mere injury to "business or property" is not enough for antitrust standing. Plaintiffs must also demonstrate "*antitrust* injury, which is to say injury of the type the antitrust laws were intended to prevent and that flows from that which makes defendants' acts unlawful."[43] The particular types of injury that qualify generally include higher prices (i.e., overcharges), reduced output, lower quality, or less innovation.[44]

Consumers of zero-price products can suffer any of these types of harm as a result of anticompetitive conduct—only the medium, not the fact, of exchange is different.[45] Anticompetitive conduct in zero-price markets may yield higher attention or information costs (i.e., overcharges), reduced output of the zero-price or an interrelated product, lower quality, or less competitive efforts directed toward innovation.

The principle of "treating like things alike" is "an idea of great resonance for law (equal justice under law, equal protection of the laws, equality before the law, one law for rich and poor, and so forth)."[46] Consumers of zero-price products can suffer—and have suffered—

40. United States v. Cooper Corp., 312 U.S. 600, 605 (1941).

41. *See, e.g.*, Joshua D. Wright & Douglas H. Ginsburg, *The Goals of Antitrust: Welfare Trumps Choice*, 81 FORDHAM L. REV. 2405, 2406 (2013) (referring to "[t]he promotion of economic welfare as the lodestar of antitrust laws" (citation omitted)).

42. *See, e.g.*, Newman, *supra* note 3, at 175–76 (discussing welfare harm to listeners resulting from broadcast-radio mergers).

43. Brunswick Corp. v. Pueblo Bowl-O-Mat, Inc., 429 U.S. 477, 489 (1977).

44. *See generally* Cargill, Inc. v. Monfort of Colorado, Inc., 479 U.S. 104, 117 (1986) (denying standing to a competitor that claimed only "loss of profits due to possible price competition").

45. Newman, *supra* note 3, at 190.

46. RICHARD A. POSNER, THE PROBLEMS OF JURISPRUDENCE 42 (1990).

antitrust harms that are structurally identical to those suffered by consumers of positive-price products.[47] It would thus run counter to a fundamental, time-honored legal principle to treat as cognizable injuries to one group but not to the other.

Radio mergers provide an instructive example. Satellite radio is generally delivered to listeners in exchange for subscription fees, while broadcast-radio listeners consume the product at zero prices. In 2008, Sirius and XM, then the two major satellite-radio providers, merged.[48] After the merger, Sirius XM allegedly raised the subscription fees it charged listeners.[49] A class action comprising satellite-radio consumers filed antitrust claims against the merged entity under Clayton Act § 7 and Sherman Act § 2. Although the defendant challenged plaintiffs' standing to bring certain state-law claims, it conceded federal antitrust standing,[50] an unsurprising move given that plaintiffs likely possessed such standing. Ultimately, after having received certification, the class settled out of court for a package valued at $193 million.[51]

Analogous overcharges have occurred in broadcast-radio markets. Following the passage of the Telecommunications Act of 1996, the industry experienced rapid, massive consolidation. Empirical research demonstrates that as competition in many markets dwindled, airtime devoted to advertisements increased.[52] Thus, broadcast-radio listeners have suffered (and likely continue to suffer) attention-cost overcharges stemming from a reduction in competition.[53] As a structural matter, these overcharges are no different than those allegedly suffered by satellite-radio customers. It would be an odd public policy that called for disparate treatment of the two groups by barring one from effective access to the courts. To the extent antitrust law should treat consumers of zero-price products differently,[54] it ought not do so at the standing stage.

Information- or attention-based harms are not mere "personal" injuries, which are insufficient to confer antitrust standing. Suffering an injury

47. Newman, *supra* note 3, at 174.

48. Blessing v. Sirius XM Radio Inc., 756 F. Supp. 2d 445, 449 (S.D.N.Y. 2010).

49. *Id.*

50. *Id.*

51. M. Sean Royall & Adam J. Di Vincenzo, *When Mergers Become a Private Matter: An Updated Antitrust Primer*, 26 ANTITRUST 41, 42 (2012).

52. Catherine Tyler Mooney, *Market Power and Audience Segmentation Drive Radio Advertising Levels* 19 (Apr. 14, 2010) (unpublished manuscript), https://editorialexpress.com/cgi-bin/conference/download.cgi?db_name=IIOC2010&paper_id=203.

53. Newman, *supra* note 3, at 193.

54. For some purposes, such consumers should receive unique analytical treatment. *See infra* Parts II.B–II.E.

causally linked to an antitrust violation is not *per se* enough to confer antitrust standing.[55] A personal injury will not suffice.[56] In *Chadda v. Burcke*, for example, a plaintiff who purportedly suffered bodily injuries from a defective cosmetic sold to her by the defendant could not recover under the antitrust laws, even assuming the defendant's alleged anticompetitive conduct caused the product defect.[57] The antitrust harm in such a case would consist only of the overcharge—the difference in price between the cosmetic as sold and the cosmetic as it would have been sold in a competitive market. Attention and information overcharges are "personal" in a sense; they involve costs extracted from the "person" of a consumer. But they are not personal injuries in the sense that would disqualify remedy under the antitrust laws. Where attention or information overcharges (or lower quality, less innovation, etc.) result from the creation, enhancement, or abuse of market power, they lie squarely within the boundaries of the antitrust laws.

The Clayton Act's standing provision encompasses consumers of zero-price products. Congress intended to create a dual-enforcement structure for the antitrust laws.[58] If one leg of that structure is hamstrung by a lack of damages standing, the antitrust enterprise will fail to function as intended.

B. Modernizing Traditional Standards: Market Definition and Market Power

The core concern of modern antitrust is with market power. In most cases, defining the relevant market is a prerequisite to proving that a defendant has market power. Thus, the market definition and market power inquiries are of utmost importance to antitrust doctrine. Yet, current formulations of these inquiries depend on the presence of positive prices. Zero-price markets, then, present a challenge for antitrust—though not an unworkable one.

1. Market Definition

Market definition has come under attack from some scholars,[59] and the 2010 FTC/DOJ *Horizontal Merger Guidelines* (HMGs) relegate market

55. AREEDA & HOVENKAMP, *supra* note 7, ¶ 345 ("Nonpecuniary injuries are not covered.").
56. *Id.*
57. *See* Chadda v. Burcke, 180 F. App'x 370 (3d Cir. 2006).
58. *See supra* note 7 and accompanying text.
59. *See, e.g.*, Louis Kaplow, *Market Definition: Impossible and Counterproductive*, 79

definition to a somewhat diminished role as compared with earlier versions.[60] Yet defining the relevant market remains an important, often crucial, element of antitrust analysis.[61] The core assumption is that (*ceteris paribus*) the higher a firm's share, the greater the firm's market power. And market definition can also play other roles in antitrust analysis, including examining entry, assessing competitive effects, and adding "clarity and power" to narratives in antitrust cases.[62]

a. Reasonable and Functional Interchangeability

In the U.S. tradition, market definition focuses on demand elasticity. The standard most commonly cited by courts hinges on "reasonable interchangeability."[63] Under this standard, products are part of the same relevant market where they are reasonably interchangeable by customers.[64] As do many "reasonableness" standards, the reasonable-interchangeability test presents a façade of clarity that disguises a lack of actual guidance. At some extreme level, all products could be thought of as interchangeable: customers with scarce resources must choose how to allocate those resources, and a decision to acquire one product necessitates (at the margin) giving up the opportunity to acquire another. Thus, for example, a consumer may decide to forego dinner at a restaurant in order to save for retirement. It does not follow that restaurant meals and mutual funds are part of the same antitrust product market. Conversely, no product is perfectly interchangeable with another; there will always be some minute

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ANTITRUST L.J. 361 (2013).

60. *Compare* U.S. DEP'T OF JUSTICE & FED. TRADE COMM'N, HORIZONTAL MERGER GUIDELINES § 4 (2010) ("The Agencies' analysis need not start with market definition. Some of the analytical tools used by the Agences to assess competitive effects do not rely on market definition . . . ."), *with* U.S. DEP'T OF JUSTICE & FED. TRADE COMM'N, HORIZONTAL MERGER GUIDELINES § 1 (1992) ("[F]or each product or service . . . of each merging firm, the Agency seeks to define a market in which firms could effectively exercise market power if they were able to coordinate their actions.").

61. Market definition currently plays a significant role in the analysis of mergers under Clayton Act § 7, restraints of trade that fall under the "rule of reason" under Sherman Act § 1, and monopolization (and attempted monopolization) under Sherman Act § 2.

62. *See* Gregory J. Werden, *Why (Ever) Define Markets? An Answer to Professor Kaplow*, 2, 14, 21 (Feb. 13, 2012) (unpublished manuscript), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2004655.

63. Perhaps the most commonly cited formulation appears in Brown Shoe Co. v. United States, 370 U.S. 294, 325 (1962).

64. *See* Times-Picayune Publ'g Co. v. United States, 345 U.S. 594, 612 n.31 (1953) ("The circle must be drawn narrowly to exclude any other product to which, within reasonable variations in price, only a limited number of buyers will turn; in technical terms, products whose 'cross-elasticities of demand' are small.").

difference in cost, packaging, branding, etc.[65] Yet it does not follow that Chiquita and Del Monte bananas are part of different antitrust product markets.[66] The reasonable-interchangeability test does make clear that neither extreme end of the spectrum is the correct starting point. But beyond this, it offers little aid.

Courts and enforcement agencies have used a variety of tools to attempt to answer the question of whether products are "reasonably interchangeable."[67] Most of these focus on prices. For example, the Court's analysis in *Eastman Kodak Co. v. Image Technical Services, Inc.*, hinged on "the extent to which consumers will change their consumption of one product in response to a *price change* in another."[68] Another common method is exemplified by Judge Hand's finding in *United States v. Alcoa* that price differences between two products indicated that those products were not in the same market.[69]

Courts and enforcers have also looked to functional attributes in determining whether products are "reasonably interchangeable." Where products serve similar functions (e.g., cellophane and butcher paper), courts have concluded that they belong in the same product market.[70] Again, though, problems with levels of abstraction arise. At a high level, cellophane and butcher paper both serve the function of wrapping foodstuffs: they may be said to be "functionally interchangeable." At a low level, however, butcher paper has much lower pliability and much higher permeability than cellophane. The U.S. Supreme Court, using a high level of abstraction in analyzing functional characteristics, found that cellophane competed in the same market as other "flexible wrappings" and concluded that no single firm had monopoly power in that market.[71] This

65. *See* United States v. E.I. du Pont de Nemours & Co., 351 U.S. 377, 393 (1956) ("[O]ne can theorize that we have monopolistic competition in every nonstandardized commodity with each manufacturer having power over the price and production of his own product. However, this power . . . is not the power that makes an illegal monopoly." (citation omitted)).

66. *See generally* Mark A. Lemley & Mark P. McKenna, *Is Pepsi Really a Substitute for Coke? Market Definition in Antitrust and IP*, 100 GEO. L.J. 2055, 2080 (2012) ("To an antitrust lawyer, brands aren't markets."). Lemley and McKenna contend that this common heuristic is deficient in the face of modern markets, which feature products that are often—and perhaps most often—quite differentiated. *Id.* at 2081.

67. *See generally* ABA SECTION OF ANTITRUST LAW, ANTITRUST LAW DEVELOPMENTS 556–75 (Jonathan M. Jacobson et al. eds., 6th ed. 2007).

68. Eastman Kodak Co. v. Image Tech. Servs., Inc., 504 U.S. 451, 469 (1992) (emphasis added).

69. United States v. Alumnium Co. of Am., 377 U.S. 271, 276–77 (1964).

70. *E.g.*, *E.I. du Pont de Nemours & Co.*, 351 U.S. 377.

71. *Id.* at 399–404.

conclusion later came to be regarded as incorrect.[72] With "functional interchangeability" as with "reasonable interchangeability," inconsistent application of the law is inevitable.

The more heterogeneous are the products in a market, the worse the analysis seems to become. Courts have reached wildly varying results in highly differentiated product markets. Adjudicated antitrust product markets have ranged from very narrow, idiosyncratic markets—e.g., for Jackson Pollock paintings[73]—to broad, all-encompassing markets like "ice cream"[74] or "furniture."[75] Confronted with differentiated products, which fall along a "*spectrum* of price and quality differences,"[76] antitrust tribunals often have thrown up their hands, making observations like "product variances . . . are economically meaningless where the differences are actually part of a spectrum."[77]

Zero-price products are often highly differentiated (at least from the perspective of users),[78] making the reasonable-interchangeability approach (and its functional-interchangeability variant) particularly unsuited for market-definition analysis. Despite this, at least one court used a functional-interchangeability approach to define a zero-price market.[79] In *LiveUniverse, Inc. v. MySpace, Inc.*, the district court accepted an alleged market for "Internet-based social networking."[80] Pointing to "Internet connectivity services like America Online," as well as "online dating sites," the defendant argued for a broader definition.[81] The court rejected those contentions, reasoning that Internet connectivity services "simply . . . give users the ability to access the Internet," and that online dating

72. *See, e.g.*, William M. Landes & Richard A. Posner, *Market Power in Antitrust Cases*, 94 HARV. L. REV. 937, 960–61 (1981) (explaining that the Court likely erred by inferring lack of market power from the observed fact that "there was some substitution between cellophane and other flexible wrapping materials *at the current price of cellophane*").

73. Vitale v. Marlborough Gallery, No. 93 Civ. (PKL) 6276, 1994 WL 654494, at *3–4 (S.D.N.Y. July, 5 1994).

74. *In re* Super Premium Ice Cream Distrib. Antitrust Litig., 691 F. Supp. 1262, 1268 (N.D. Cal. 1988).

75. *See* Murrow Furniture Galleries, Inc. v. Thomasville Furniture Inds., Inc., 889 F.2d 524, 528 (4th Cir. 1989).

76. *Id.* at 528 (quoting *In re Super Premium Ice Cream Distrib. Antitrust Litig.*, 691 F. Supp. at 1268) (emphasis omitted).

77. *E.g.*, Western Parcel Express v. UPS, 65 F. Supp. 2d 1052, 1059 (N.D. Cal. 1998) (quoting *In re* Super Premium Ice Cream Distrib. Antitrust Litig., 691 F. Supp. at 1268).

78. *See* Newman, *supra* note 3 at 178.

79. LiveUniverse, Inc. v. MySpace, Inc., No. CV 06–6994 AHM (RZx), 2007 WL 6865852, at *4 (C.D. Cal. June 4, 2007), *aff'd*, 304 Fed. Appx. 554 (9th Cir. 2008).

80. *Id.* at *7 ("[T]he Court finds that LiveUniverse sufficiently alleges a relevant antitrust market of Internet-based social networking websites.").

81. *Id.* at *5–6.

sites' "dominant function and purpose is to enable users to meet potential dates."[82] In contrast, online social networks were "used to get in touch with old friends and to keep current friends informed about what's new and exciting," attributes that rendered social networks sufficiently unique as to constitute a relevant antitrust market.[83] Though the court may have been correct in concluding that online social networking was a relevant market, its analysis lacked rigor.

Because they allow such subjective applications, these standards present serious problems in practice. Those problems are likely to worsen, rather than improve, in the zero-price context. Consequently, antitrust law ought to leave such approaches behind, or at least relegate them to a secondary role, when confronting zero-price markets.

The widespread adoption of the hypothetical monopolist test (HMT) approach is due in large part to the unworkability of bare "reasonable" and "functional" interchangeability analyses and the inchoate body of case law they have spawned.[84] The question, then, is whether even the more modern HMT approach is workable, for it—like much of antitrust law—depends heavily on positive prices.

b. The HMT and Proposed Reforms: Implementing a "SSNIC" Test

In merger, and at least occasionally in non-merger[85] contexts, U.S. courts and antitrust enforcement agencies employ the HMT to define markets.[86] The HMT asks whether a hypothetical firm that controlled all sales of the relevant product(s) would likely be able to profitably impose "at least a small but significant and non-transitory increase in price (SSNIP) on at least one product in the market."[87] A SSNIP is usually—

82. *Id.* at *6.

83. *Id.*

84. *See generally* AREEDA & HOVENKAMP, *supra* note 7, ¶ 910b (explaining that the advent of the HMT was a response to the outmoded reasoning on display in *Brown Shoe* and its progeny).

85. Some contend that problems inhere in extending the HMT to non-merger analyses. *See* Lawrence J. White, *Market Power and Market Definition in Monopolization Cases: A Paradigm Is Missing*, *in* 2 ISSUES IN COMPETITION LAW AND POLICY 913 (2008) ("[T]he [HMT market definition paradigm] is sensibly used only in the context of a *forward-looking* question: 'Will this merger permit the creation or enhancement of market power?'").

86. *See, e.g.*, *In re* Se. Milk Antitrust Litig., 739 F.3d 262 (6th Cir. 2014) (contemplating application of the HMT to Sherman Act § 1 and § 2 claims); United States v. Am. Express Co., 88 F. Supp. 3d 143, 176 (E.D.N.Y. 2015) (discussing Government expert economist's use of the HMT to define the relevant market in a Sherman Act § 1 case).

87. U.S. DEP'T OF JUSTICE & FED. TRADE COMM'N, *supra* note 60, § 4.1.1.

though not always—taken to mean a two-year, five-percent increase in the total price paid by customers.[88]

This analytical framework loses its coherence in zero-price markets, where the basic unit of value extracted from customers is not expressed as a price. Mathematically, "[t]he SSNIP test becomes inoperable when the basic price is zero."[89] Five percent of zero is still zero.

Without some sense of proportion between the hypothetical price increase and the total price, the hypothetical-monopolist test as currently constituted becomes unsatisfyingly arbitrary. Zero-price markets offer no reference point for sizing the hypothetical price increase. As a result, any number used will be the product of haphazard selection.[90]

A recent case illustrates the problem. In *Streamcast Networks*, Streamcast and Kazaa distributed competing versions of a peer-to-peer (P2P) software application called "FastTrack."[91] Streamcast filed Sherman Act claims against Kazaa and others, alleging a "worldwide market for the provision of FastTrack P2P file-sharing services and the selling of advertising directed to users of such services."[92] The district court first enunciated the standard for defining antitrust markets, citing the U.S. Supreme Court's statement in *Eastman Kodak* that markets are defined using cross-elasticity of demand, which "refers to 'the extent to which consumers will change their consumption of one product in response to a *price change* in another.'"[93] The *Streamcast* court proceeded to reject the alleged market as too narrow, reasoning that "there is simply no indication

88. *Id.* § 4.1.2 ("The Agencies most often use a SSNIP of five percent."); *see* United States v. Bazaarvoice, Inc., No. 13−cv−00133−WHO, 2014 WL 203966, at *32 (defining a relevant market as "R&R platforms in the United States for retailers and manufacturers" in part because "other social commerce tools are most often complements rather than substitutes, and there is no persuasive evidence that this will change *in the next two years*" (emphasis added)).

89. Evans, *supra* note 6, at 72; *see also* 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), https://issuu.com/cornellsun/docs/05-02-14_entire_issue_lo_res ("[I]f the base price of a product is zero, we cannot define the relevant market using the Hypothetical Monopolist Test.").

90. The limitations of the SSNIP test when applied to free goods have been recognized elsewhere. *See* Gal & Rubinfeld, *supra* note 4, at 32; *Cf.* Miguel Sousa Ferro, *"Ceci N'est Pas un Marché": Gratuity and Competition Law* 8–16 (Sept. 8, 2014) (preliminary draft), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2493236; Evans, *supra* note 6; Angela Daly, *Free Software and the Law: Out of the Frying Pan and into the Fire: How Shaking up Intellectual Property Suits Competition Just Fine*, J. PEER PRODUCTION (2013), http://peerproduction.net/issues/issue-3-free-software-epistemics/peer-reviewed-papers/; Spencer Weber Waller, *Antitrust and Social Networking*, 90 N.C L. REV. 1771, 1785−86 (2012).

91. Streamcast Networks, Inc. v. Skype Techs., S.A., 547 F. Supp. 2d 1086, 1089−90 (C.D. Cal. 2007).

92. *Id.* at 1094.

93. *Id.* (citing Eastman Kodak Co. v. Image Tech. Servs., Inc., 504 U.S. 451, 469 (1992)) (emphasis added).

that users . . . would not switch from FastTrack . . . to another provider or network *if even the most nominal of fees were charged*."[94] Yet, without some basis for comparing the price increase to the total price, this analysis lacks rigor—it is meaningless to call a price increase "nominal" if the benchmark price is zero.[95] This fallacy is referred to *infra* as the "First *Streamcast* Fallacy."

Despite this shortcoming, however, the HMT may not be entirely unworkable in zero-price markets. By substituting the relevant exchanged cost(s)—i.e., information and/or attention—for prices, enforcers may gain insight as to how closely products compete. The question becomes whether a hypothetical monopolist would likely impose an "SSNIC"—a small but significant and non-transitory increase in (exchanged) *costs*—on customers.[96] For example, investigators analyzing a merger between two search providers might ask whether a market-wide five percent increase in the amount (or length, duration, etc.) of advertisements would cause search customers to substitute away to a different product.[97] Alternatively, a court might base its market definition in part on evidence of past increases in the levels of attention or information costs extracted by the market participants.

The nature of zero-price markets does raise several potential problems that must be confronted in the course of conducting SSNIC analyses. First, analysts must cabin their inquiries to situations that hold constant all variables other than the one of interest. Both attention costs and information costs can be quite heterogeneous, complicating analyses considerably.[98] For example, consumers may not perceive a five-percent increase in the space devoted to advertisements to be an additional cost at all, if the increase is accompanied by a substantial enough decrease in (for example) the length of time during which those advertisements are displayed. Likewise, a consumer may not perceive a five-percent increase in the amount of information requested by a supplier to be a net cost where there is a corresponding decrease in the sensitivity of the information

94. *Id.* at 1095 (emphasis added).

95. It bears noting that increasing prices from zero to any positive number represents an infinite increase, raising the question of how an infinite increase can also be nominal.

96. Or, for a monopsonist, on buyers. As explained more fully *infra*, this reference to "costs" should not be taken to mean all costs incurred in a transaction. Rather, the focus is on *exchanged* costs. In the type of transactions salient here, those comprise information costs, attention costs, or both.

97. This discussion follows the district court's reasoning in *United States v. Am. Express Co.*, 88 F. Supp. 3d 143, 151 (E.D.N.Y. 2015), that "two-sided platform[s] comprise[] at least two separate, yet deeply interrelated, markets."

98. *See* discussion, *supra* Part II.A.1.

requested.[99] Unless analysts take care to hold such variables constant, this heterogeneity could increase the likelihood of error, along with its attendant costs.

This difficulty illuminates a second question: What *is* the relevant cost? The HMT is ultimately concerned with how customers (or sellers, in the case of buyer-power analyses) would respond to an increase in the exchanged cost of the relevant product. In traditional, positive-price markets, analysts can properly view price as representing the relevant exchanged cost: the price paid constitutes the valuable consideration exchanged by buyers for the relevant product(s). But in zero-price markets, this is not the case. Firms in zero-price markets often make their profits by extracting information, attention, or both.[100] In other words, the cost to zero-price customers of a given relevant product may consist entirely of increased information costs, entirely of increased attention costs, or a combination of the two in any proportion. Analysts must tailor their focus to the appropriate cost(s)—i.e., the cost(s) most likely to be increased by a hypothetical monopolist.[101]

In some clear-cut cases, the relevant cost will be immediately apparent. For example, in broadcast-radio markets, listeners incur attention costs, but not information costs.[102] Mixed cases are more difficult. Here, the proper question is whether a hypothetical monopolist likely would profitably impose at least a SSNIC in either information or attention costs. If the answer is yes to either type of cost, the market under analysis should be considered a relevant antitrust market: it is susceptible to anticompetitive effects stemming from market power.

Complicating matters further, customers' perceptions of information and attention costs may be inaccurate. This unreliability may present practical problems for hypothetical-monopolist market-definition analyses. It is relatively difficult for consumers to evaluate the costs and benefits of zero-price products.[103] Hoofnagle and Whittington posit that "free offers

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99. To illustrate, this could occur if a supplier were to stop requesting Social Security numbers and start requesting additional, but less sensitive, information.

100. *See supra* notes 16–21 and accompanying text.

101. This process is somewhat analogous to one contemplated by the HMGs: "Where explicit or implicit prices for the firms' specific contribution to value can be identified with reasonable clarity, the Agencies may base the SSNIP on those prices." HORIZONTAL MERGER GUIDELINES, *supra* note 60, § 4.1.2. The Agencies appear to have done so on only one occasion to date. *See* Competitive Impact Statement at 10, United States v. ConAgra Foods, Inc., No. 1:14-cv-00823 (D.D.C. May 20, 2014).

102. *See supra* notes 52–54 and accompanying text.

103. *See, e.g.*, David Adam Friedman, *Free Offers: A New Look*, 38 N.M. L. REV. 49, 73 (2008) ("Valuing bundles [that include free offers] can be an opaque exercise and can cause consumers to make purchase decisions differently depending on presentation.").

are . . . used widely as an enticement to get consumers to try a product without realizing its costs."[104] Strandburg claims that consumers generally do not understand the types and prevalence of potential data-collection-related harms, do not understand firms' data-related practices, and do not understand "how any given instance of data collection fits into the data about them that is already flowing in the online ecosystem."[105] And Shelanski suggests that "a platform's use and protection of customer data is often difficult for consumers to observe or understand."[106]

These problems of transparency and calculability are relatively less present with regard to attention costs, where consumers are at least sometimes able to observe and better understand the trade-offs they face.[107] Even here, however, technological advances have complicated the picture. Behavioral (or "targeted") advertising creates greater consumer uncertainty than the more familiar "contextual" advertising that accompanied traditional zero-price products like broadcast television and radio.[108] And, as discussed further *infra*, consumers may underestimate attention costs attendant to *all* advertisements, not just behavioral ones.[109]

Finally, information costs are unique—while they represent a cost to customers, they do not automatically translate into increased profits for suppliers, at least not in the short run. Using the example of "an online publisher that decides to collect and mine additional consumer data," Cooper points out that "collecting, storing, and analyzing data is an additional cost" to the publisher.[110] Ultimately, suppliers increase information costs to improve the quality of their products, increase advertising-related revenues (or revenues from simply selling the extra

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104. Chris Jay Hoofnagle & Jan Whittington, *Free: Accounting for the Costs of the Internet's Most Popular Price*, 61 UCLA L. REV. 606, 613 (2014).

105. Strandburg, *supra* note 19, at 132–33 (concluding that "Internet users cannot make meaningful assessments of the marginal expected disutility of any given use of an online product or service").

106. Howard A. Shelanski, *Information, Innovation, and Competition Policy for the Internet*, 161 U. PA. L. REV. 1663, 1690 (2013).

107. This is true at least after the customer has experienced the relevant product; many forms of digital content comprise "experience goods," the value (and, in the zero-price context, cost) of which cannot *ex ante* be accurately assessed by consumers. *See* Hannibal Travis, *Google Book Search and Fair Use: iTunes for Authors, or Napster for Books?*, 61 U. MIAMI L. REV. 87, 101–02 (2006) (explaining, within a discussion of IP-protected digital content, that "the quality and characteristics of experience goods typically 'can be assessed only after they are bought" (quoting MICHAEL PARKIN, MICROECONOMICS 468 (2d ed. 1994))).

108. *See* Strandburg, *supra* note 19, at 131 ("[I]t is nearly impossible for a consumer to estimate the increment in expected harm associated with a given instance of data collection.").

109. *See infra* notes 216–29 and accompanying text.

110. James C. Cooper, *Privacy and Antitrust: Underpants Gnomes, the First Amendment, and Subjectivity*, 20 GEO. MASON L. REV. 1129, 1135 (2013) (emphasis omitted).

data, perhaps to advertisers), or both.[111] From this, Cooper concludes that "reducing privacy would be an odd way to exercise market power."[112] This conclusion holds as to the first motive for suppliers increasing information costs: improving product quality would be an odd way to exercise market power, though it may ultimately lead to higher revenues. The conclusion does not, however, hold true as to the second motive: increasing information costs to increase advertising-related revenues would be a rational way for a firm to exercise market power. Thus, a SSNIC test focusing on information cost is an appropriate means of defining markets (and ultimately allowing inferences about market power)—but analysts must hold constant an additional variable. The appropriate question is whether a hypothetical monopolist would likely impose a SSNIC *without increasing the quality* of the relevant product.[113]

All of these issues counsel against placing too much weight on the evidence yielded by zero-price customer interviews, one of the most common fact-gathering methods used by antitrust analysts.[114] That is not to say, however, that such evidence has no value. Although information and attention costs are more problematic in terms of transparency and calculability than are prices, they are not entirely opaque. Customers can, and sometimes do, make purchasing or product-substitution decisions based on relative changes in information or attention costs.[115] Thus, analysts and courts should not entirely discount industry-participant interview evidence in zero-price markets. Furthermore, evidence of revealed preferences (e.g., natural experiments) is not subject to many of these shortcomings.

c. Application and Limitations of a "SSNIQ" Test

To date, the only high court to have squarely addressed market definition in a zero-price context is the Chinese Supreme People's Court. In *Qihoo 360 v. Tencent*, the People's Court engaged in a sophisticated analysis of several issues arising out of an alleged violation of China's

111. *See id.* at 1135–36.

112. *Id.* at 1136.

113. Put another way, the question is, "Would a hypothetical monopolist likely impose a SSNIC in order to sell the additional information or use it to increase advertising revenues?"

114. *See infra* notes 208–20 and accompanying text.

115. *See, e.g.*, Erik Gruenwedel, *CEO: Hulu Plus Eyeing Ad-Free Streaming*, HOME MEDIA MAGAZINE (Sept. 27, 2013), http://www.homemediamagazine.com/hulu/ceo-hulu-plus-eyeing-ad-free-streaming-31484?print=1 ("[Hulu's CEO] acknowledged what has emerged as a not-so-positive differentiator between Hulu Plus and [its competitors]: ad spots.").

Anti-Monopoly Law (AML).[116] Among these was whether the HMT was appropriate given that the relevant product (online instant messaging services) was offered "free."[117]

The People's Court avoided the First *Streamcast* Fallacy. As a general matter, the court observed, "when the market equilibrium price of a commodity is zero, it is particularly difficult to use SSNIP because it is necessary to determine an appropriate benchmark price."[118] More specifically, the court pointed out, the problem arises because, "[w]hen the benchmark price is zero, the price remains at zero after growth of 5–10%."[119] Thus—unlike the *Streamcast* court—the People's Court avoided the fallacy of defining a market based on users' predicted response to a "small" increase in price where the prevailing price was zero.

Instead, the People's Court espoused a "SSNDQ" test, a variation on the hypothetical-monopolist test that focuses on a hypothetical "Small but Significant and Not-transitory [sic] *Decline of Quality*."[120] While this approach may sometimes be correct, a word of caution is needed. In many zero-price markets, product quality is attained primarily via sunk research-and-development costs, while the marginal cost of delivering a high-quality instead of a low-quality product may be minimal. Consider, for example, streaming online radio services. The bulk of costs relating to creating a high-quality user experience arise from copyright licensing fees and product development. The incremental cost of providing audio at 192 kbps versus 128 kbps is relatively small.[121] The commoditized industries

116. Teng Xun Gongsi yu Qi Hu Gongsi Bu Zhengdang Jingzheng Jiufen An (腾讯公司与奇虎公司不正当竞争纠纷案) [Beijing Qihoo 360 Technology Co. v. Tencent Technology (Shenzhen) Co.], (Sup. People's Ct. 2013) (China), translated in https://www.competitionpolicyinternational.com/assets/DecisionTranslation.pdf [hereinafter Beijing Qihoo]. China's AML was modeled to some degree after U.S. antitrust and European competition laws, and its application in this case drew heavily from well-established antitrust principles (including use of the HMT in market definition). For a high-level discussion of similarities and differences between Chinese and Western competition laws, see, e.g., New Chinese AntiMonopoly Law, JONES DAY COMMENTARY (Oct. 2007), http://www.jonesday.com/New_Chinese_Anti-Monopoly_Law/.

117. Beijing Qihoo, *supra* note 116. The following discussion is not meant to weigh in on the broader question of whether the HMT is appropriate for use in non-merger contexts. For an argument that the HMT is not appropriate in non-merger contexts, see White, *supra* note 85.

118. *Beijing Qihoo*, *supra* note 116.

119. *Id.*

120. *Id.* (emphasis added). Gal and Rubinfeld similarly advocate the use of a quality-focused analysis in at least those zero-price markets where consumers do not pay via attention or information: "[I]n markets in which all goods are provided for free, we suggest a variation of the SSNIP test, which evaluates the market boundaries by measuring the effects of small but significant and non-transitory changes in quality (SSNIQ)." Gal & Rubinfeld, *supra* note 4, at 35.

121. *Cf.* Dan Rayburn, *Detailing Netflix's Streaming Costs: Average Movie Costs Five Cents to Deliver*, STREAMINGMEDIABLOG (Mar. 17, 2009, 4:11 PM), http://blog.streamingmedia.com/2009/03/estimates-on-what-it-costs-netflixs-to-stream-movies.html.

that typified historical antitrust-enforcement actions did not exhibit this dynamic. Sellers of pasta, for example, could lower their costs a great deal by agreeing to fix semolina flour content at artificially low levels.[122] Such a scheme may be profitable despite the attendant loss of customers due to the lowered quality of the relevant product.

As a result, it is unlikely that firms enjoying market power in at least some zero-price markets would choose to exercise that power by lowering quality. Where doing so would result in negligible cost reduction, the attendant loss of customers would likely make an SSNDQ irrational—yet a relevant antitrust market may still be present. Consequently, SSNDQ tests are more appropriate where marginal costs vary substantially in tandem with quality levels, and less appropriate where that is not the case.

2. Market Power

As with market definition, the traditional tests for analyzing whether a firm has market power depend heavily on positive prices. For example, in Sherman Act § 1 claims that fall under the rule of reason,[123] the U.S. Supreme Court has defined market power as "the ability to raise prices above those that would be charged in a competitive market."[124] In Sherman Act § 2 cases, the Court has defined market power as "the power to control prices or exclude competition."[125] In merger cases brought under Clayton Act § 7, courts focus on whether a transaction will "lessen competition,"[126] but this too is typically understood as involving higher prices.[127]

In a zero-price market, there is no price for a dominant firm to control. As a result, "[t]raditional market power analysis is not designed to apply to free goods."[128] It is not necessarily the case that a firm, having acquired

122. *See* Nat'l Macaroni Mfrs. Ass'n v. FTC, 345 F.2d 421, 424–26 (7th Cir. 1965).

123. Though the text of § 1 condemns "[e]very . . . restraint of trade," courts read the statute "as if the word 'unreasonable' appeared before 'restraint.'" AREEDA & HOVENKAMP, *supra* note 7, ¶ 1500. Certain categories of conduct are treated as *per se* unreasonable; others are analyzed under the "rule of reason," a broad-ranging inquiry that takes into account "how a challenged practice might restrain or harm competition, how it might benefit the parties and society, and whether some alternative behavior would be preferable." *Id.*

124. NCAA v. Bd. of Regents of the Univ. of Oklahoma, 468 U.S. 85, 109 n.38 (1984).

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

126. This language is contained in Clayton Act § 7. 15 U.S.C. § 18 (2012).

127. *E.g.*, FTC v. Cardinal Health, Inc., 12 F. Supp. 2d 34, 52 (D.D.C. 1998) ("Generally, under Section 7 of the Clayton Act, a prima facie case can be made if the government establishes that the merged entities will have a significant percentage of the relevant market—enabling them to raise prices above competitive levels.").

128. Gal & Rubinfeld, *supra* note 4, at 36.

market power in a zero-price market, will then exercise that power by imposing a positive price for its product.[129] Experience and theory demonstrate that zero prices may remain at zero even where market shares shift substantially in favor of a single provider.[130] Instead of raising prices to consumers, a dominant firm may be more likely to increase information costs, attention costs, or both, particularly in light of the Zero-Price Effect, discussed further *infra*.[131] A similar dynamic is at play in a market where firms compete primarily on the amount of output they produce, which is sold at a single market-clearing price.[132] In such a market, a dominant firm will likely exercise its market power not by directly increasing its prices, but by directly or indirectly (via, e.g., eliminating capacity) reducing output so as to raise the market-clearing price. Similarly, in zero-price markets, relatively more of the competitive action surrounds customer information and attention—at least as compared to price.[133]

But the Supreme Court's formulations of the test for market power can be made workable in zero-price markets if "price" is understood to be interchangeable with "information or attention costs." The term "price" in antitrust law and economics is often understood to encompass nonprice features like quality. It is admittedly doubtful that the Court had information or attention costs in mind when formulating its various price-focused, market-power standards. Yet the growing body of modern decisions overturning long-entrenched antitrust precedent stands clearly for the proposition that antitrust doctrines must evolve to reflect changing marketplace realities and economic understanding.[134] The classic "control prices or exclude competition" framework for evaluating market power

129. Argenton and Prufer's model follows this logic, predicting that one firm will eventually gain a one hundred percent share (i.e., that the market is a natural monopoly), yet assuming prices will remain fixed at zero. *See* Cédric Argenton & Jens Prüfer, *Search Engine Competition with Network Externalities*, 8 J. COMPETITION. L. & ECON. 73 (2012).

130. Assuming, for example, that there is a relevant market for generalized search results delivered to European consumers, Google has enjoyed a 90+ percent share for years, yet its price remains at zero. *See, e.g.*, Editorial, *Google's Offer to Europe*, N.Y. TIMES (May 12, 2013), http://www.nytimes.com/2013/05/13/opinion/googles-offer-to-europe.html.

131. *See infra* Part II.C.

132. This is a characteristic of the venerable Cournot model of competition. *See, e.g.*, Gregory J. Werden, *Economic Evidence on the Existence of Collusion: Reconciling Antitrust Law with Oligopoly Theory*, 71 ANTITRUST L.J. 719, 722 (2004) ("The usual version of the Cournot model . . . features a single, homogeneous product. Cournot competitors choose quantities.").

133. Of course, quality and innovation competition can still occur, and may even account for the lion's share of competitive efforts in a given zero-price market. The present focus, however, is on monetary as compared to nonmonetary exchanged costs.

134. *E.g.*, Leegin Creative Leather Prods., Inc. v. PSKS, Inc., 551 U.S. 877 (2007) (overturning per se rule against vertical minimum price maintenance); State Oil Co. v. Khan, 522 U.S. 3 (1997) (overturning per se rule against vertical maximum price fixing).

should likewise evolve to reflect the centrality of information and attention costs in zero-price markets.

In practice, evaluating market power in zero-price markets will often be more difficult than doing so in markets with positive prices. As with market definition, analysis is complicated by the nature of information and attention costs.[135] Furthermore, information and attention competition among firms is often not as robust as price competition, even in relatively competitive markets.[136] In some zero-price markets, the available market-power evidence will be less plentiful and less clear.

The types of evidence that show market power in zero-price markets, however, may be the same as in positive-price markets. Evidence of actual anticompetitive effects should continue to be sufficient for courts to infer market power.[137] Wherever possible, natural experiments—particularly past increases or decreases in attention or information costs, decreases in quality, and competitive entry or exit—should play a substantial role. Qualitative evidence of the inputs into a firm's decisionmaking may also be valuable.

Absent direct evidence, structural analyses of market shares and concentration may hold value. Where analysts rely on structural indicators of market power, however, they should reject arguments to the effect that the appropriate metric for measuring market share is always sales revenue. Thus, for example, the court in *LiveUniverse, Inc.* correctly declined to hold that the "appropriate measure of a firm's share is [always] the quantity of goods or services actually sold to consumers."[138] Instead, the court adopted number of users as the market-share metric, observing that, "[c]arried to its logical conclusion, [the defendant's] argument would mean that a company offering a free product . . . could never acquire market power."[139]

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135. *See supra* Part II.B.1.

136. *See* Newman, *supra* note 3, at Part III.B.

137. *Cf.* FTC v. Ind. Fed'n of Dentists, 476 U.S. 447, 460–61 (1986) (holding that proof of actual anticompetitive effects "obviate[s] the need for an inquiry into market power").

138. LiveUniverse, Inc. v. MySpace, Inc., No. CV 06–6994 AHM (RZx), 2007 WL 6865852, at *7 (C.D. Cal. June 4, 2007), *aff'd*, 304 Fed. App'x 554 (9th Cir. 2008).

139. *Id.*

C. The Zero-Price Effect in Action

A robust body of behavioral economics research points to the existence of the Zero Price Effect (ZPE). For ease of analysis, neoclassical economics often assumes that demand curves are linear. The ZPE, however, suggests that when prices reach zero, consumer demand skyrockets—even where a standard cost-benefit analysis seems to favor a non-zero-price alternative.[140]

1. Substitutability of Positive- and Zero-Price Products

Consumers' outsized preference for zero-price products over positive-price products tends to mean that a given zero-price product and a given positive-price product do not compete in the same antitrust product market. The ZPE creates an unexpectedly high degree of consumer demand for zero-price products relative to positive-price products.[141] This nonlinearity complicates market-definition analyses.

The ZPE dictates that any increase in price from zero to a positive amount—no matter how "small" in absolute terms—will trigger substantial customer substitution away from the now-positive-price product.[142] As a result, the competitive action in many zero-price markets occurs around nonprice attributes. This is so because the ZPE influences rational firms' strategic behavior. Suppose firm *X* decides to compete directly with competitor *Y*, whose product is priced at zero. All else being equal, *X* would be severely disadvantaged by offering its competing product at a positive price.[143] *X* would thus either mimic the strategy that allows *Y* to offer zero prices or employ a unique strategy that will allow *X*

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140. *See, e.g.*, Kristina Shampanier et al., *Zero as a Special Price: The True Value of Free Products*, 26 MARKETING SCI. 742, 743 (2007); DAN ARIELY, PREDICTABLY IRRATIONAL: THE HIDDEN FORCES THAT SHAPE OUR DECISIONS 55–65 (2008); *see also* Juan L. Nicolau & Ricardo Sellers, *The Free Breakfast Effect: An Experimental Approach to the Zero Price Model in Tourism*, 51(3) J. TRAVEL RES. 243, 244 (2012).

141. *See* Shampanier et al., *supra* note 140, at 742; *see also* John M. Newman, *Copyright Freeconomics*, 66 VAND. L. REV. 1409 (2013) (discussing the ZPE in the context of markets for creative works).

142. *See supra* notes 140–41 and accompanying text. This is true at least where the customers are natural persons. *See* Newman, *supra* note 3, at 187–89 (discussing the limitations of behavioral economics vis-à-vis firm behavior).

143. *Cf.* Robert Bork, *High-Stakes Antitrust: The Last Hurrah?*, *in* HIGH-STAKES ANTITRUST: THE LAST HURRAH? 45, 55 (Robert W. Hahn ed., 2003) ("[Microsoft] was earning supracompetitive returns on the monopoly it was defending, while Netscape, forced to distribute its Navigator free, had no income in that market to cover its fixed costs. Understandably, Netscape gave up a contest it could not win.").

to set its price at zero.[144] This suggests that, where a given product is offered at zero but a second product is not, the seller of the second product is likely *not* competing directly with the seller of the first. In other words, the two products are likely not close substitutes.

It is thus doubly inappropriate for courts to define markets based on a hypothetical increase from zero to positive prices. Where two products are offered at zero prices, the fact that customers would switch away from one product and toward the other in the event of a price increase does not necessarily indicate that the two belong in the same product market. Such switching likely reflects nothing more than the ZPE in action. Failing to recognize this reality is referred to herein as the "Second *StreamCast* Fallacy."

In the *StreamCast* case discussed above, the district court rejected the plaintiff's proposed market definition.[145] The court's decision hinged on its conclusion that if the seller of a given zero-price service were to begin charging positive prices, users would likely switch en masse to other zero-price services.[146] In light of the ZPE, though, the fact that such switching would likely occur does not necessarily indicate close substitutability.

The Second *StreamCast* Fallacy ignores practical reality: the force of the ZPE may cause consumers to switch to a relatively distant substitute in the face of a price increase. To illustrate, suppose an analyst were attempting to define the market that includes general online search. In the face of even a "small" zero-to-positive price increase by a hypothetical monopolist of general search, many users might substitute to remaining zero-price alternatives,[147] perhaps increasing their use of URLs to navigate directly to websites. Yet the likelihood of such substitution does not necessarily indicate that the presence of URLs would discipline any attempt by a search monopolist to acquire, exercise, or maintain market power. Focusing solely on prices is misguided in zero-price markets, where strategic conduct centers on nonprice aspects of competition.

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144. An objection here might be that *X* could overcome the ZPE by offering a highly innovative, better quality product. This is true. Yet it also suggests that the two products may not compete very directly.

145. StreamCast Networks, Inc. v. Skype Techs., S.A., 547 F. Supp. 2d 1086, 1095–96 (C.D. Cal. 2007).

146. *Id.* at 1095.

147. A similar argument is made by Kersting and Dworschak. *See* Christian Kersting & Sebastian Dworschak, *"Does Google Hold a Dominant Market Position?—Addressing the (Minor) Significance of High Online User Shares*, 16 IFO SCHNELLDIENST 7 (2014), *translated in* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2495300 ("Any attempt by Google to charge a fee for search queries would simply result in a significant loss of users.").

The *Qihoo* court1[148] correctly observed the existence of—and avoided falling into—the Second *StreamCast* Fallacy. The online instant-messaging services that constituted the relevant market in *Qihoo* were offered for "free."[149] As the court recognized, "[u]nder this business model, there may be a large loss in customers, which affects value-added services and advertising revenue. If the Internet service provider increased its basic service price, even if from free to [a] minor charge, this could affect a vast number of users."[150] More specifically, "when the instant messaging services are . . . free . . . and [have] become a popular business model . . . the user has very high price sensitivity. A price change, even minor, could cause a significant decline in customers."[151] Consequently, a SSNIP test would likely cause products to be included in the relevant market even where such products are distant substitutes for the candidate product.[152] The *Qihoo* court correctly declined to apply a zero-to-positive SSNIP test, avoiding the Second *StreamCast* Fallacy.

As a more general matter, analysts ought always to hesitate before concluding that a zero-price product is a close substitute for a positive-price product. And even if case-specific evidence reveals a high degree of observed substitution between two such products, analysts should be wary of the "Cellophane Fallacy": falsely concluding that observed substitution *at current market prices* indicates lack of market power.[153] It may be that substitution is observed because the firm offering the *positive*-price product has already exercised market power to raise the price of its product, causing marginal customers to switch to the zero-price product. Conversely, it may be that the firm offering the *zero*-price product has already exercised market power to elevate the information or attention costs attached to its product, causing marginal customers to switch to the positive-price product. In either case, it would be wrong to conclude on

148. Teng Xun Gongsi yu Qi Hu Gongsi Bu Zhengdang Jingzheng Jiufen An (腾讯公司与奇虎公司不正当竞争纠纷案) [Beijing Qihoo 360 Technology Co. v. Tencent Technology (Shenzhen) Co.], (Sup. People's Ct. 2013) (China), translated in ttps://www.competitionpolicyinternational.com/assets/DecisionTranslation.pdf. The Beijing Qihoo decision is discussed above. *See also supra* notes 117–21 and accompanying text.

149. *Beijing Qihoo*, *supra* note 116.

150. *Id.*

151. *Id.*

152. *See id.* ("In this case, HMT, using SSNIP, will probably include goods in the relevant market which may not have [a] substitutive relationship, leading to a[] . . . wide definition of the relevant market. Therefore, it is not suitable in this case.").

153. The Cellophane Fallacy traces back to a 1956 Supreme Court decision holding that the defendant lacked monopoly power based on substantial observed substitution at then-current prices. United States v. E.I. du Pont de Nemours & Co., 351 U.S. 377, 403–04 (1956).

the basis of observed substitution alone that the two are part of the same product market.

Additionally, the "Reverse Cellophane Fallacy" may come into play where a firm offers zero-price products as part of a temporary promotional campaign.[154] The reverse Cellophane Fallacy consists of concluding that a firm has market power due to low observed substitution rates.[155] A firm engaged in a temporary promotional campaign featuring zero-prices may leverage the ZPE to create low demand cross-elasticities vis-à-vis other firms' products, but that firm may not enjoy long-run market power.[156] Employing the Reverse Cellophane Fallacy to conclude otherwise will lead to harmful false positives.

2. Enhanced Market Power

The competitive advantage created by the ZPE may also impact market-power analysis. In the U.S. tradition, supply-side substitution is typically treated separately from market definition.[157] Instead, the potential of such substitution factors into market-power analysis under the rubric of "entry."[158]

Entry analysis of zero-price markets should properly account for the barriers to entry or expansion not only in the market for the zero-price product, but also in the market for the interrelated product(s).[159] Zero prices tend to be offered by firms that produce multiple, interrelated products.[160] Firms offering zero-price products make their profits from the interrelated, positive-price products they offer. If entry barriers are high in the interrelated product market, entry into the zero-price market may be unlikely—even if barriers are low in the zero-price product market itself.[161] A firm attempting to enter only the zero-price market would face

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154. *See* Fabio Polverino, *Hunting the Wild Geese: Competition Analysis in a World of "Free," in* CONCORRENZA E MERCATO 545, 553 (2012) (analyzing EU competition law).

155. Debra J. Aron & David E. Burnstein, *Regulatory Policy and the Reverse Cellophane Fallacy*, 6 J. COMPETITION L. & ECON. 973, 987 (2010).

156. *See* Newman, *supra* note 3, at Part I.B (discussing "nonsustainable" strategies).

157. *See, e.g.*, DEP'T OF JUSTICE & FED. TRADE COMM'N, *supra* note 60, §§ 4, 9 (separating discussions of market-definition and entry analyses).

158. *See id.* § 9.

159. *See* Gal & Rubinfeld, *supra* note 4, at 38 ("To be complete, barriers to the entry of as-efficient or more efficient firms should be recognized in all affected markets.").

160. *See* Evans, *supra* note 6, at 81–82.

161. *Cf.* Gal & Rubinfeld, *supra* note 4, at 18 ("Free-standing free goods might create exclusionary effects that are quite similar to those of bundled free goods: creating a two-level entry problem, with a rival required to enter more than one market, even if it can provide a high quality product only in one.").

a serious competitive disadvantage, since it would need to recoup its investment costs via charging positive prices. The ZPE suggests that many customers would reject any such attempt. As a result, the new entrant may well be foreclosed both from the interrelated-product market (due to barriers) *and* from turning a profit in the zero-price market (due to the ZPE). And that, in turn, could allow an incumbent to exercise market power, even in a market that appears on its face to have low entry barriers.[162]

This raises a related question: What, if any, entry barriers exist in zero-price markets? In *America Online, Inc. v. GreatDeals.Net*, for example, the district court concluded that it was impossible to "monopolize the information services market because the Internet is infinite. . . . [A]n entrant's ability to participate in the market . . . is without boundary."[163] With the benefit of hindsight, however, such reasoning appears naive. Like all markets, zero-price markets exhibit entry barriers, the types and magnitudes of which vary widely. On one end of the spectrum lie products like simple mobile applications, many of which are distributed at zero prices.[164] Here, barriers to entry may consist of only a few thousand dollars and a small amount of time.[165] At the other end of the spectrum are more complex products.[166] Consider comprehensive mapping systems like Google Maps. Over a period of years, Google developed Maps by acquiring several smaller firms, compiling mapping data and satellite imagery, constructing specially 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.[167] Entry on a scale that would pose a

162. Of course, where all incumbents offer zero-price goods, the ZPE is not relevant to competition among those incumbents. *Id.* at 38. It does, however, remain relevant to potential entrants.

163. Am. Online, Inc. v. GreatDeals.Net, 49 F. Supp. 2d. 851, 861 (E.D. Va. 1999).

164. *See, e.g.*, Carter Thomas, *How Much Does It Cost to Develop an App?* BLUECLOUD SOLUTIONS (last updated Mar. 25, 2015), http://www.bluecloudsolutions.com/blog/cost-develop-app/ (stating that many mobile applications ("apps") are distributed for "free").

165. *See, e.g.*, *id.* (estimating that simple mobile apps cost between $1,000–4,000 to develop).

166. In one recent decision, the court dismissed a class-action consumer complaint alleging that Google restrained trade in the "Internet search" market. Feitelson v. Google, Inc., 80 F. Supp. 3d 1019, 1023, 1034 (N.D. Cal. 2015). The plaintiffs alleged that "search engines . . . require significant infrastructure in the form of physical plants backed by significant financial and computational resources, as well as continuous programming support for the algorithms and software that support the search engine, and the ability to manage search on a global scale." *Id.* at 1023.

167. *See* Leo Kelion, *Google Maps Uses Ground Truth Project to Battle Apple*, BBC NEWS (Sept. 10, 2012), http://www.bbc.com/news/technology-19536269.

meaningful competitive constraint would require similar outlays and time (at least given current available technology).

In addition to fixed development costs, network effects may serve to discourage entry in zero-price markets. At least one court has refused to dismiss a complaint where the plaintiff alleged that network effects were a formidable barrier to entering a zero-price market.[168] Some economists conclude that search markets, currently dominated by zero-price products, exhibit such effects.[169]

C. Defenses: The "Free-Goods" Argument

The presence of zero-price goods and services tends to signal the existence of interrelated products that subsidize the zero-price offerings.[170] This function of zero-price markets can open the door for a novel argument from defendants: that imposing a restraint on one side of a two-sided platform was necessary for offering a "free" product to consumers on the other side of the platform. Creative though it may be, the "free-goods defense" should fail as a matter of antitrust law and economics.[171]

In *United States v. American Express Co.*,[172] the district court correctly rejected a free-goods defense. American Express operated a credit-card network that functioned as a two-sided platform.[173] On one side of the

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168. *See* LiveUniverse, Inc. v. MySpace, Inc., No. CV 06−6994 AHM (RZx), 2007 WL 6865852, at *8, 9 (C.D. Cal. June 4, 2007) (refusing to dismiss a complaint on market-power grounds, in part because the plaintiff alleged that "in the market for Internet-based social networking websites, network effects occur largely due to the 'user-generated nature' of the content on those websites").

169. *See generally, e.g.*, Argenton & Prüfer, *supra* note 121 (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).

170. *See supra* Part II.B.2; Evans, *supra* note 6, at 86.

171. Gal and Rubinfeld observe that "free goods that are part of a strategy of increasing profits in another market . . . raise an important question: whether harm to one group of consumers might be justified by a larger benefit to another group of consumers, in another market." They "suggest adopting a rule which allows for some balancing." Gal & Rubinfeld, *supra* note 4, at 40. This suggestion appears to contemplate a different situation (some harm to some customers allows a *greater* amount of benefits to other customers) than the type addressed herein—where, at most, the defendant is passing through all of the supracompetitive profits it is earning in one market to its customers in another market.

172. 88 F. Supp. 3d 143 (E.D.N.Y. 2015). To the extent it is relevant, the author represented the United States in this matter. The discussion contained in this Article draws solely on public information; it does not relate to or reveal any confidential information. Again, the views expressed herein are purely the author's and do not necessarily reflect the views of the U.S. Department of Justice.

173. That payment networks are two-sided is well-established among industrial-organization economists. For the seminal paper on the topic, see Jean-Charles Rochet & Jean Tirole, *Cooperation Among Competitors: Some Economics of Payment Card Associations*, 33 RAND J. ECON. 549 (2002).

platform were merchants, who paid fees to the networks in exchange for the ability to accept credit-card payments from card-holding consumers.[174] On the other side of the platform were the card-holders.[175]

American Express's contracts with merchants contained what it called "non-discrimination provisions" (NDPs).[176] The NDPs "prevent[ed] the roughly 3.4 million merchants who accept American Express credit and charge cards from steering customers to alternative credit card brands, such as Visa, MasterCard, and Discover."[177] Thus, for example, a merchant could not "offer[] a 10% discount for using a Visa card, free shipping for using a Discover card, or a free night at a hotel for using an American Express card."[178]

The district court held that the NDPs restrained competition. Specifically, the NDPs did so by "creat[ing] an environment in which there is nothing to offset credit card networks' incentives—including American Express's incentive—to charge merchants inflated prices for their services."[179] Merchants, in turn, passed these higher costs on to all of their customers.[180]

In support of the NDPs, American Express raised the free-goods defense. American Express argued that the NDPs were necessary to fund American Express's "superior" card-holder rewards program.[181] As a general matter, consumers can access credit-card services for a price of zero—"indeed, many are essentially charged a negative price in the form of loyalty points or other rewards."[182] Thus, American Express was

174. *Am. Express*, 88 F. Supp. 3d at 150 ("Each time a customer uses a credit card, the merchant, in one way or another, pays a fee to the network services provider that facilitates the customer's purchase.").

175. *Id.*

176. *Id.* at 149. Visa and MasterCard historically imposed similar rules, and the Government's initial complaint named Visa and MasterCard as well as Amex. *See id.* Both Visa and MasterCard settled without going to trial. *See id.*; *see also* Press Release, U.S. Dep't of Justice, "Justice Department Sues American Express, MasterCard and Visa to Eliminate Rules Restricting Price Competition; Reaches Settlement with Visa and Mastercard" (Oct. 4, 2010), http://www.justice.gov/opa/pr/2010/October/10-at-1115.html.

177. *Am. Express*, 88 F. Supp. 3d at 149–50.

178. *Id.* at 150.

179. *Id.*

180. *Id.*

181. *See* United States v. Am. Express Co., 21 F. Supp. 3d 187, 192–93 (E.D.N.Y. 2014) (denying summary judgment) ("Defendants state that their higher fees can be explained because. . . . Defendants . . . offer cardmember rewards and benefits that they argue are superior to those of other credit card companies."); Christie Smythe, *AmEx Executive Defends High-Fee Model as Competitive Edge*, BLOOMBERG (July 28, 2014, 5:25 PM), http://www.bloomberg.com/news/2014-07-28/amex-executive-defends-high-fee-model-as-competitive-edge.html ("AmEx says . . . that its high-fee model, protected by its rules, allows it to offer generous rewards.").

182. Newman, *supra* note 3, at 156.

arguing that its NDPs were necessary for it to continue offering zero- or negative-price products—i.e., free goods—to consumers.[183] While the argument may hold some emotional appeal,[184] the district court rejected it on both legal and factual grounds.[185]

This outcome was correct. It is an ancient tenet of the law that disposing of ill-gotten gains in an admirable manner is no defense.[186] Robin Hood has no place in antitrust doctrine, wherein competition, rather than vigilantism, is the chosen means of optimally distributing resources.[187] Even if a dominant firm were to pass 100 percent of its supracompetitive profits on to consumers in the form of free products, such "altruism" ought not give rise to a legal defense.

Antitrust economics here aligns with legal doctrine. At least since the impact of the Chicago School was first felt in the 1970s and 1980s,[188] and arguably earlier,[189] antitrust law has been substantially (and some would argue primarily) concerned with allocative efficiency. Even assuming 100 percent pass-through in the form of free products, restraints on trade may still create allocative inefficiencies, regardless of whether the *net* output of a platform increases or decreases.

To use operating systems (OSs) as an example, assume that a monopolist controlling 100% of OS platforms were to impose a restraint of trade on application developers. Suppose further that the restraint allowed the monopolist to charge those developers supracompetitive prices for access to the OS (i.e., for the ability to develop programs

183. *Am. Express*, 88 F. Supp. 3d. at 226.

184. *Id.* at 227 (calling American Express's proferred justification "perhaps intuitively appealing").

185. *Id.* ("Defendants' putative justification is inconsistent with both the law and the factual record.").

186. *See, e.g.*, Chevron Corp. v. Donziger, 974 F. Supp. 2d 362, 385 (S.D.N.Y. 2014) ("Justice is not served by inflicting injustice. The ends do not justify the means. There is no 'Robin Hood' defense to illegal and wrongful conduct."); *cf.* Microsoft Corp. v. Comput. Support Servs. of Carolina, Inc., 123 F. Supp. 2d 945, 950 (W.D.N.C. 2000) (rejecting argument that alleged theft of a competitor's intellectual property was appropriate in light of competitor's alleged anticompetitive conduct).

187. *See* FTC v. Super. Ct. Trial Lawyers Ass'n, 493 U.S. 411, 423 (1990) (condemning fee-fixing agreement among lawyers, despite the possibility that "the quality of representation may improve when rates are increased"); *see also* Jon Polenberg, Comment, *tfosorciM and croMiftos: Why High-Technology Antitrust Inquiry Is Backwards and Inside-Out*, 57 U. MIAMI L. REV. 1275, 1294 (2003) ("Robin Hood is guilty of theft. Whether he is performing his theft under the guise of providing for the poor does not change the illegality of his acts. The illegality and serving-the-poor inquiries are separate and should stay that way.").

188. Herbert Hovenkamp, *Antitrust Policy After Chicago*, 84 MICH. L. REV. 213, 215 (1985) ("The Chicago School model of antitrust policy dictates that allocative efficiency as defined by the market should be the only goal of the antitrust laws.").

189. *See, e.g.*, N. Pac. Ry. Co. v. United States, 356 U.S. 1, 4 (1958) (referring to "allocation" of economic resources).

compatible with the OS). Finally, suppose that the monopolist were to pass through 100% of those rents to users, in the form of zero-price OSs.

In this scenario, the restraint would cause a higher number of users to demand OSs, putting upward pressure on OS output. Users would, in isolation, benefit from this scenario; it is that benefit that supposedly justifies the free-goods defense. But the restraint would also cause a lower number of developers to create programs for the OS, putting downward pressure on OS output.

Crucially, the restraint would create allocative inefficiencies regardless of whether *net* output of the OS were to increase or decrease. Society would devote an inefficiently low amount of resources to producing applications; it would also devote an inefficiently high amount of resources to consuming OSs. Antitrust law condemns such outcomes. At the core of the antitrust enterprise lies the assumption that unrestrained competitive forces, not the whims of firms with market power, "yield the best allocation of our economic resources, the lowest prices, the highest quality and the greatest material progress."[190]

E. Damages Valuations

Valuing damages for antitrust harms is often difficult, but it is also essential. First, and most obviously, courts awarding damages to private plaintiffs must arrive at some valuation to make the awards. Second, private litigants deciding whether to settle must estimate the size of a potential damages award, discounted by the probability of liability. Third, public enforcement agencies must estimate harm in order to apply an error-cost framework to decide whether to seek a remedy for potential violations.

In the United States, private plaintiffs (but not the Government)[191] may recover monetary damages if they successfully prove an antitrust violation. Having proved an antitrust injury that caused them harm, antitrust plaintiffs still bear the burden of establishing the amount of damages. The basic objective when calculating antitrust damages is to make the plaintiff whole—to recreate the world as it would have existed had the defendant not violated the antitrust laws.[192]

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190. *Id.*

191. In 2011, the Antitrust Division for the first time obtained court approval for a settlement involving disgorgement of the defendant's profits. United States v. Keyspan Corp., 763 F. Supp. 2d 633 (S.D.N.Y. 2011). Damages, however, remain unavailable to public enforcers.

192. In antitrust law, actual damages awards, once calculated, are trebled. The goals of the additional 200 percent windfall have been stated as, variously, incentivizing private antitrust

As the Court has observed, "[t]he 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."[193] Yet, the equitable intuition is that it would be unjust to allow defendants to escape liability by insisting that plaintiffs prove with specificity the amount of harm the defendants themselves inflicted.[194] These principles have led courts to apply a fairly relaxed standard to private antitrust plaintiffs attempting to prove the amount of their damages claims.[195]

1. Monetary Damages in Zero-Price Markets

In zero-price markets, quantifying antitrust damages with a high degree of accuracy will generally be difficult. The "vagaries of the marketplace" noted by the Court in 1981 are no less present in modern zero-price settings. They may well be more intractable today.

To the extent customers seek damages for harms from attentional or informational overcharges, the complexity of proof increases significantly. For all the reasons that economists use price as an easy stand-in for more complicated competitive functions like quality or innovation—and because damages (like prices) comprise money—prices also facilitate damages calculations.

The shift to zero-price markets can thus take antitrust damages calculations away from an accounting-style exercise and toward something more akin to measuring damages for pain and suffering or loss of consortium. That shift is potentially problematic. Damages awards for such nonmonetary harms, and for pain and suffering in particular, have been heavily criticized as allowing judges and (especially) juries too much discretion. And in the antitrust field, juries have already become the object of much skepticism.[196]

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enforcement. *See* Hawaii v. Standard Oil Co., 405 U.S. 251, 262 (1972) ("By offering potential litigants the prospect of a recovery in three times the amount of their damages, Congress encouraged these persons to serve as 'private attorneys general.'"); deterring anticompetitive conduct, *see* Illinois Brick Co. v. Illinois, 431 U.S. 720, 746 (1977); and dispossessing violators of "the fruits of their illegality," *see* Hanover Shoe, Inc. v. United Shoe Mach. Corp., 392 U.S. 481, 494 (1968).

193. J. Truett Payne Co. v. Chrysler Motor Corp., 451 U.S. 557, 566 (1981).

194. *See, e.g.*, Eastman Kodak Co. of New York v. S. Photo Materials Co., 273 U.S. 359, 379 (1927) ("[A] defendant whose wrongful conduct has rendered difficult the ascertainment of the precise damages suffered by the plaintiff, [sic] is not entitled to complain that they cannot be measured with the same exactness and precision as would otherwise be possible.").

195. Story Parchment Co. v. Paterson Parchment Paper Co., 282 U.S. 555, 562 (1931).

196. *See generally* Daniel A. Crane, *The Much-Maligned Antitrust Jury*, *in* THE INSTITUTIONAL STRUCTURE OF ANTITRUST ENFORCEMENT 109 (2011) ("No U.S. antitrust institution is more maligned than the jury."); HERBERT HOVENKAMP, THE ANTITRUST ENTERPRISE: PRINCIPLE AND EXECUTION 4

Thus, on the one hand, accurately calculating damages awards in antitrust cases involving zero-price markets may be quite difficult. The nature of the harms to be remedied may require nonspecialist judges and juries to exercise a greater-than-ideal degree of discretion. On the other hand, the U.S. Supreme Court pointed out decades ago that "[t]he constant tendency of the courts is to find some way in which damages can be awarded where a wrong has been done," and that "[d]ifficulty of ascertainment is no longer confused with right of recovery for a proven invasion of the plaintiff's rights."[197]

2. *Damages-Valuation Approaches*

The questions of whether and how to grant antitrust damages in zero-price markets thus depend on whether some workable, if inexact, metric can be used to quantify the harm to be remedied. One such metric, proposed herein, is the "marketplace valuation" method. This metric contains an inherent shortcoming, yet alternative damages-calculation methods exhibit unique deficiencies that render them much more unreliable.

a. Marketplace Valuation

The marketplace-valuation approach would look to the per-unit value of the relevant information or attention to either the defendant (if used internally) or the third-party customers who buy the information or attention.[198] The per-unit value is then multiplied by the number of units of information or attention that constitutes the violation-related overcharge.

(2005) ("Jury trials in front of intelligent but nonspecialist judges is a truly miserable way to make economic policy."). Hovenkamp contends that neither of the two functions juries traditionally serve in the U.S. judicial system—evaluating the veracity of witness testimony and delineating community moral standards—are relevant in the antitrust context. *Id.* at 48.

197. Bigelow v. RKO Radio Pictures, Inc., 327 U.S. 251, 264 (1946) (quoting *Story Parchment Co.*, 282 U.S. at 565) (internal quotation marks omitted).

198. A somewhat analogous damages-calculation method is the "factor income" or "derived value" approach sometimes used to measure harm to natural resources. This approach "is used as a means of valuation in applications where natural resources are used as inputs in the production of other goods and services." C.A. Ulibarri & K.F. Wellman, *Natural Resource Valuation: A Primer on Concepts and Techniques* 23, *prepared for* U.S. DEP'T OF ENERGY (1997). It considers the increase in costs due to the natural-resource harm—holding all else constant—that are incurred by the firm(s) who use the natural resource as a production input. *Id.* at 23–24.

To illustrate, suppose that firm *A* competes with several rivals in the market for online social-scrapbooking platforms.[199] *A*'s scrapbooking service is a zero-price product as to users, who pay via attention costs by viewing advertisements while using the service. *A* makes its revenue by selling advertising space to third parties.[200] *A* is able to sell 100 units of advertising to third parties at the competitive per-unit price of $1.

Suppose now that *A* acquires a monopoly and exercises its power by engaging in exclusionary conduct that allows *A* to extract from consumers more attention costs than it could have gained otherwise. *A* is now able to sell 110 units of advertising to third parties at a per-unit price of $1. Though the price to users remains zero, users incur relatively higher attention costs. Under the marketplace-valuation approach, the measure of harm is the difference between the amount actually paid by advertisers and the amount they would have paid *A* if *A* had not engaged in the anticompetitive conduct: $10.

The marketplace-valuation approach thus incorporates the actual marketplace value of attention. Its primary advantage is objectivity: the "relevant data" on which triers of fact could base a "just and reasonable estimate" of harm[201] comprises revealed preferences by actual market participants.

But this approach is inexact. As the above example indicates, it is a measure of what the attention was worth to advertisers, not necessarily the attention costs to consumers. To continue the example, suppose that a massive recession causes all of *A*'s advertisers to lower the per-unit price they are willing to pay for users' attention from $1 to $0.90, but does not affect consumers' willingness to incur attention costs in exchange for using *P*'s service.[202] Going forward, *A*, which retains its monopoly status, could keep the attention-cost level on the consumer side constant at 110 units. Thus, consumers would experience the same effective amount of attention costs: the amount of harm would remain constant. Yet the

199. This example is not meant to suggest that the Internet-based scrapbooking platform market is a relevant antitrust market, or that any particular firm wields market power in that market.

200. A real-life online scrapbooking platform, Pinterest, generated its first revenue by introducing advertising to the user experience. *See* Douglas MacMillan, *Pinterest CEO Lays Out Growth Plan, Sees Revenue in 2014*, WALL ST. J. (Jan. 21, 2014, 2:56 PM), http://online.wsj.com/news/articles/SB10001424052702304027204579334651169493632.

201. Zenith Radio Corp. v. Hazeltine Research, 395 U.S. 100, 124 (1969) (quoting Bigelow v. RKO Pictures, Inc., 327 U.S. 251, 264–65 (1946)).

202. In fact, a recession might *increase* consumers' willingness to incur attention costs by decreasing the amount of money available to the consumers for discretionary spending.

amount actually paid by advertisers—the variable used to calculate damages—would decrease.

Depending on the contours of the particular market at issue, variant market-based valuation methods are available, though they tend to suffer from similar defects. Consumers of the zero-price version of freemium products, for example, may point to the positive-price version of the relevant product as the appropriate metric for measuring damages.[203] To illustrate, suppose a firm were to offer two versions of the same service: a zero-price option that allowed the firm to collect personal information from users and a positive-price option that did not.[204] Users of the zero-price version might argue that the amounts paid by positive-price users represent the value of the information. But this argument is not quite correct—those amounts represent the value to a different user group of not surrendering their information, and different individuals attach varying values to their personal information.[205]

Such market-based valuation metrics are decoupled from actual harm as compared to the more traditional price-based damages-calculation metrics. But the ultimate question in awarding damages is not whether this (or any other) measure is mathematically exact. Antitrust plaintiffs have "an obligation to come forward with the best, most accurate measure of damages that is reasonably available."[206] The marketplace-valuation metric is based on what the actual exchanged attention or information costs were worth in an actual marketplace, or what avoiding the costs was worth to some set of actual customers. It thus exhibits at least some degree of objectivity and depends on revealed, not stated, preferences—a crucial advantage, given the unique shortcomings of stated preferences in zero-price markets.

b. Stated Preferences and Cognitive Biases

Other metrics might be used to attempt to measure more directly the value of attention and information costs to consumers. Plaintiffs could, for

203. This basic business model ("freemium") is already widely used with advertising-supported services. *See, e.g.*, Newman, *supra* note 3, at 157.

204. This hypothetical is not far-fetched—in 2015, AT&T announced a new fiber-optic Internet service that allowed users to pay an additional $29 per month to "avoid being tracked" while using the service. *See* Elizabeth Dwoskin & Thomas Gryta, *AT&T Offers Data Privacy—for a Price*, WALL ST. J. (Feb. 18, 2015, 6:01 AM), http://blogs.wsj.com/digits/2015/02/18/att-offers-data-privacy-for-a-price/?mod=WSJ_TechWSJD_NeedToKnow.

205. *See* Newman, *supra* note 3, at 181.

206. Harkins Amusement Enters., Inc. v. Gen. Cinema Corp., 748 F. Supp. 1399, 1406 (D. Ariz. 1990); *accord* S. Pac. Commc'ns Co. v. AT&T, 556 F. Supp. 825, 1090 (D.D.C. 1960).

example, introduce survey evidence purporting to quantify that value based on respondents' answers to a questionnaire. Conducting and analyzing such studies has become increasingly commonplace in the environmental-law context,[207] where this methodology is known as the "contingent valuation" approach.[208] Survey research, however, consists of stated preferences. Stated preferences (what people say they want) stand in contrast to revealed preferences (what people actually want, as demonstrated by real-world behavior).[209] And neoclassical economics—which provides the backbone of modern antitrust economics—strongly favors analysis based on revealed, rather than stated, preferences.[210]

Myriad cognitive biases and limitations put an upward bound on how accurately respondents can answer questions about the monetary value of attention and information costs. Research in this area shows a divide between perceived and actual costs—between stated and revealed preferences.

When asked about their preferences, individuals appear to overestimate their sensitivity to information costs. Thus, for example, "Americans say they are deeply concerned about privacy on the web and their cellphones. . . . Yet they keep using the services and handing over their personal information."[211] When asked, consumers voice their support for privacy-protection measures—but their "concern appears to have had little discernible impact on [their] shopping behaviors."[212] Researchers have

207. *See* Michael A. Livermore, *Cost-Benefit Analysis and Agency Independence*, 81 U. CHI. L. REV. 609, 656 (2014) ("Because of the prevalence of difficult-to-measure goods in the environmental field, '[i]t is hard to overestimate the central importance of contingent valuation to modern environmental economics.'" (quoting Richard T. Carson & W. Michael Hanemann, *Contingent Valuation*, *in* 2 HANDBOOK OF ENVIRONMENTAL ECONOMICS 821, 826 (Karl-Göran Mäler & Jeffrey R. Vincent eds., 2005)).

208. *See* Ulibarri & Wellman, *supra* note 198, at 25 ("The most obvious way to measure nonmarket values is to ask people how much they would be willing to pay for the resource or avoid any damages that might be sustained by the resource.").

209. *See, e.g.*, Albert W. Alschuler, Lafler *and* Frye*: Two Small Band-Aids for a Festering Wound*, 51 DUQ. L. REV. 673, 701 n.99 (2013) ("Economists speak of 'revealed preferences.' They maintain that people's preferences are shown, not by what they say, but by what they do.").

210. *See, e.g.*, Joshua D. Wright & Douglas H. Ginsburg, *Behavioral Law and Economics: Its Origins, Fatal Flaws, and Implications for Liberty*, 106 NW. U. L. REV. 1033, 1034 (2012) (stating that "neoclassical economic theory depends" on "the link between revealed preference and individual welfare").

211. Claire Cain Miller, *Americans Say They Want Privacy, but Act As if They Don't*, N.Y. TIMES (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&abt=0002&abg=1.

212. Joseph Phelps, Glen Nowak & Elizabeth Ferrell, *Privacy Concerns and Consumer Willingness to Provide Personal Information*, 19 J. PUB. POL'Y & MKTG. 27, 27 (2000).

dubbed this the "privacy paradox."[213] Empirical research indicates that the gap is substantial. In one study, individuals stated their willingness to disclose an average of 8.7 items of personal information—yet, several weeks later, actually disclosed nearly twice that number.[214] When it comes to information costs, individuals "say one thing (intend to limit disclosure) and then do another (actually provide personal details)."[215]

On the other hand, individuals appear to underestimate attention costs. One study showed that Internet users as a whole believe online advertisements to be "almost completely ineffective."[216] In fact, almost half of users reported that advertisements have "no effect whatsoever," stating a belief that they were essentially invulnerable to advertisements.[217] This belief was incorrect. Follow-up experiments involving anagram word problems surrounded by varying numbers and types of advertisements demonstrated that "peripheral ads had substantial persuasive and subtle distracting effects."[218] In short, research shows that "consumers underestimate the effects that on-line advertisements have on them."[219]

There are vagaries inherent in any of these valuation methodologies. The pronounced divergence between stated and revealed preferences regarding information and attention costs, however, ought to make courts particularly wary of placing much weight on contingent valuations in antitrust cases involving zero-price markets.

3. Disgorgement as an Alternative to Damages

Disgorgement, an equitable remedy that transfers an undeserved benefit from a defendant to a plaintiff (or class), may serve as an alternative to awarding damages for some antitrust harms involving zero-price markets. Disgorgement does not require plaintiffs to offer a calculation of harm.[220] Although disgorgement has rarely been invoked in litigated antitrust cases, "there is surprisingly little doubt that equitable antitrust remedies include requiring violators to disgorge any illegally

213. Patricia A. Norberg, Daniel R. Horne & David A. Horne, *The Privacy Paradox: Personal Information Disclosure Intentions Versus Behaviors*, 41 J. CONSUMER AFFAIRS 100 (2007).

214. *Id.* at 112–13. These results were observed in a fairly small sample size, twenty-three individuals. *Id.* at 110.

215. *Id.* at 101.

216. Brad J. Sagarin et al., *Bartering Our Attention: The Distraction and Persuasion Effects of On-Line Advertisements*, 8 COGNITIVE TECH. 4, 5 (2003).

217. *Id.* at 5.

218. *Id.* at 14.

219. *Id.* at 16.

220. *See* Einer Elhauge, *Disgorgement as an Antitrust Remedy*, 76 ANTITRUST L.J. 79, 81 (2009).

obtained profits."[221] The FTC has successfully sought disgorgement as an antitrust remedy in a handful of cases.[222] And, for the first time in 2011, the Department of Justice successfully pursued disgorgement as a remedy for a Sherman Act violation.[223]

Disgorgement offers both advantages and disadvantages as compared to awarding damages. The immediate advantage is that of demonstrability. As Elhauge points out, "even where this [disgorgement] analysis is difficult, it may well be easier to calculate the amount of illicit profits than it is to calculate the amount of harm to each victim."[224] This is doubly true in the zero-price context: although the relevant harms may be nonmonetary, defendants' profits will always be expressed in dollar terms. On the other hand, disgorgement explicitly does not seek to compensate victims for their injuries. And in the antitrust context, the important functions served by the trebling of damages go unmet where courts apply only equitable remedies (like disgorgement). Yet despite these limitations, where zero prices render damages calculations impossible or overly unreliable, disgorgement may be the next-best option.

4. The Role of Public Enforcement

In some instances, no measure of damages may be reasonably available. Given finite resources, antitrust plaintiffs may not be able to offer a damages valuation that meets even the relaxed standard for antitrust damages. Even well-heeled plaintiffs may struggle to untangle complex zero-price business models. Accordingly, damages valuations submitted in zero-price contexts may veer into the mere "speculation or guesswork" condemned by the U.S. Supreme Court.[225]

As a result, public antitrust enforcers should pay special attention to such markets. Where proving damages is unworkable, injunctive relief remains available. The reality, however, is that private antitrust enforcement would be nearly nonexistent absent the prospect of damages for successful plaintiffs. Private plaintiffs often are best situated to detect antitrust violations.[226] Yet, in complex zero-price scenarios, there is a real

221. *Id.* at 79.

222. *See* ANTITRUST MODERNIZATION COMM'N, REPORT AND RECOMMENDATIONS, 286 n.11 (2007) (collecting cases).

223. *See generally* United States v. Keyspan Corp., 763 F. Supp. 2d 633 (S.D.N.Y. 2011).

224. Elhauge, *Disgorgement*, *supra* note 220, at 81.

225. Bigelow v. RKO Radio Pictures, Inc., 327 U.S. 251, 264 (1946).

226. Reiter v. Sonotone Corp., 442 U.S. 330, 344 (1979) ("Congress created the treble-damages remedy . . . precisely for the purpose of encouraging *private* challenges to antitrust violations. These

danger that the relatively dismal prospects of damages recovery will, in practice, prevent any private enforcement, thereby leaving such markets under-policed. Public antitrust enforcement is most crucial in markets where private enforcement is least likely to be effective.

III. ANTICOMPETITIVE CONDUCT IN ZERO-PRICE MARKETS

The discussion turns now to the particular types of strategic conduct that have been, are, or may soon be challenged in zero-price markets. As to each category of conduct, this Part is, by turns, both descriptive and prescriptive. Each Subpart attempts to collect and report objectively all extant case law involving the particular type of conduct addressed. Where no case law yet exists, illustrative hypotheticals are posed. Additionally, normative critique of courts' decision-making is woven into each discussion: errors and potential pitfalls are identified, and guidance for future analyses is offered.

A. Price and Cost Fixing

Horizontal cartel activity has long been at the core of antitrust liability.[227] Because of their high likelihood of causing anticompetitive harm, agreements among direct competitors that involve naked price fixing, joint output limitation, and market-allocation are generally treated as per se illegal.[228] This per se rule "condemns conduct without proof of power, effect, or purpose and without hearing claims of legitimate objectives."[229] Conspiring competitors may face hefty fines and even prison sentences.

Zero-price markets present two challenges for the treatment of horizontal agreements. First, should agreements among horizontal competitors to fix the price of a product at zero be treated similarly to agreements to fix positive prices—i.e., should horizontal zero-price-fixing

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private suits provide a significant supplement to the limited resources available to the Department of Justice for enforcing the antitrust laws and deterring violations.").

227. *See, e.g.*, Edward D. Cavanagh, *Detrebling Antitrust Damages: An Idea Whose Time Has Come?*, 61 TUL. L. REV. 777, 798 (1987) (referring to "an inner core of antitrust cases, for example, those involving horizontal price-fixing, where liability is unambiguous").

228. This treatment is justified by basic economic theory. A group of firms acting together faces the same incentive to raise prices and reduce output as a single-firm monopolist. And an agreement to act jointly is a quick and low-cost way to acquire market power relative to the aggressive competition or predatory conduct required of a single firm wishing to acquire such power.

229. AREEDA & HOVENKAMP, *supra* note 7, ¶ 1509a.

be per se illegal? Second, how should antitrust law address horizontal agreements to fix attention or information cost levels?

1. Zero-Price Fixing

If horizontal cartel activity lies at the core of antitrust liability, then horizontal price fixing lies at the very heart of that core. As the leading treatise observes, the rationale for treating horizontal price fixing that is not ancillary to joint productive activity[230] as per se illegal hinges on both the high likelihood that such price-fixing will impose anticompetitive harms and the low likelihood that it will yield net social benefits.[231] The consensus is that any "conceivable social benefits are few in principle, small in magnitude, speculative in occurrence, and always premised on the existence of price-fixing power that is likely to be exercised adversely to the public."[232]

Horizontal zero-price fixing challenges the consensus view. The likelihood that such price fixing will impose anticompetitive harms or yield social benefits varies greatly depending on the market context of the challenged agreement. More specifically, supplier agreements to set customer-facing prices at zero create little risk of harm and a high likelihood of societal benefits. But agreements among buyers to fix prices to suppliers at zero carries a relatively high risk of harm and low likelihood of societal benefits. Antitrust rules, thus, ought to be lenient toward the former and wary of the latter.

When suppliers agree to set customer-facing prices at zero, the core concern motivating the per se rule against horizontal price fixing—that competitors will set prices higher than the competitive level, reducing output and harming customers—is ameliorated. As Gal and Rubinfeld suggest, "the motivation to supply a free good plays a significant role . . . it is a helpful and efficient first step when analyzing the welfare effects of free goods."[233] An agreement among suppliers to set prices at zero is less likely than an agreement to set prices at some positive level to be

230. *Id.* The per se prohibition of horizontal price fixing is not universal. As discussed further *infra* note 242, *Broadcast Music* carved out an exception from the per se rule against naked horizontal price fixing for restraints of trade that facilitate joint productive activity that would not have otherwise occurred.

231. *See* AREEDA & HOVENKAMP, *supra* note 7, ¶ 1509a.

232. *Id.* ¶ 1509a.

233. Gal & Rubinfeld, *supra* note 4, at 31.

motivated by the lure of supracompetitive profits.[234] And unlike maximum price fixing, there is generally no danger that the "ceiling" will serve also as a de facto "floor." Unless sellers had been charging negative prices—paying customers to take their products—imposing fixed zero prices without more is an unalloyed good. Since negative prices are quite rare in practice, the likelihood of harm is also rare. Furthermore, as discussed further below, the conceivable social benefits yielded by horizontal zero-price fixing agreements are relatively greater in number and magnitude, and less speculative in nature than those attendant to similar agreements in positive-price markets.[235] These differences militate against treating horizontal zero-price fixing by suppliers as per se illegal.[236] Such agreements are to be distinguished, however, from other supplier cartel agreements (e.g., market-allocation agreements) that merely happen to involve zero-price products.[237]

Wallace v. IBM[238] provides an instructive example of benign (and, indeed, beneficial) horizontal zero-price fixing agreements among suppliers. *Wallace* involved an allegation of horizontal zero-price fixing by suppliers. Linux, an open-source OS, was distributed under the GNU General Public License (GPL). Among other things, the GPL allowed users to prepare—but prevented them from charging positive prices for—derivative works.[239] The plaintiff wanted to compete with Linux by creating a derivative of it or an entirely new OS; he contended that various entities involved in the Linux project had conspired to prevent such competition "by making Linux available at an unbeatable price."[240] Yet as Bond points out, "the GPL coordinates the work of thousands of programmers, with at least thousands looking to download the software

234. *See* Gal & Rubinfeld, *supra* note 4, at 8 ("[I]t is important to realize that a growing number of goods are provided free of charge based on motivations that are intrinsic and not purely economic.").

235. *Cf.* United States v. Microsoft Corp., 253 F.3d 34, 93 ("[B]ecause of the pervasively innovative character of platform software markets, tying in such markets may produce efficiencies that courts have not previously encountered and thus the Supreme Court had not factored into the per se rule as originally conceived.").

236. *Cf.* AREEDA & HOVENKAMP, *supra* note 7, ¶ 1509a.

237. Thus, for example, a district court applied the per se rule to a territorial market-allocation scheme involving the provision of online Yellow Pages services. The fact that the defendants used an ad-supported zero-price delivery model did not ameliorate the likely purpose and effect of the agreement. *See* GTE New Media Servs., Inc. v. Ameritech Corp., 21 F. Supp. 2d 27, 44–45 (D.D.C. 1998).

238. Wallace v. Int'l Bus. Mach. Corp., 467 F.3d 1104 (7th Cir. 2006).

239. *Id.* at 1105.

240. *Id.* at 1106.

that they produce."[241] Thus, the GPL was ancillary to joint productive activity, much like the blanket licenses at issue in *Broadcast Music*.[242] In fact, by eliminating the requirement of payment altogether, the GPL may have done even more to reduce transaction costs than did the blanket licenses in *Broadcast Music*. Seeing no evil—and much good—in the GPL, Judge Easterbrook, writing for the Seventh Circuit, affirmed the trial court's dismissal of Wallace's complaint.[243]

Agreements by buyers to fix supplier-facing prices at zero carry with them a much greater potential risk of harm than supplier agreements like the GPL in *Wallace*. Because buyer-side zero-price fixing agreements tend to lower costs, they are likely motivated by desire to extract supracompetitive profits.[244] At the same time, such agreements are less likely to be motivated primarily by the desire to engage in joint productive activity that would not be possible absent agreement.

The NCAA's rules forbidding certain forms of student-athlete compensation at issue in *O'Bannon v. NCAA*[245] can be analyzed as an example of buyer-side horizontal zero-price fixing.[246] The NCAA, a cooperative joint venture, was established to regulate intercollegiate sports.[247] At issue in *O'Bannon* were NCAA-promulgated rules that prevented member schools from (among other things) compensating student-athletes "for the use of their names, images, and likenesses" in various media.[248] Essentially, as the district court pointed out, "the schools agree[d] to value [such uses] at zero by agreeing not to compete with each

241. 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, 559 (2005).

242. In *Broadcast Music, Inc. v. Columbia Broadcasting System, Inc.*, 441 U.S. 1 (1979), the U.S. Supreme Court applied a rule of reason analysis to a blanket-licensing scheme created by two joint ventures, ASCAP and BMI. Broadcast-radio stations wanted to play copyrighted songs; individual composers wanted their songs to be played. *Id.* at 4–6. Yet transacting on an individualized basis would be ruinously time-consuming. *Id.* at 5. ASCAP and BMI solved this market failure by creating a blanket license: stations could play any song in ASCAP and BMI's libraries in exchange for a small license fee, fixed by the joint ventures. *Id.* Thus, although the blanket licenses comprised horizontal price-fixing agreements, the price-fixing was ancillary to joint productive activity (creating substantial net benefits for society) and received rule-of-reason treatment as a result. *Id.* at 22–24.

243. Wallace v. Int'l Bus. Mach. Corp., 467 F.2d. at 1107–08.

244. Again, when it comes to designing antitrust rules to address zero-price products ("free goods"), motives matter. *See* Gal & Rubinfeld, *supra* note 4, at 31.

245. O'Bannon v. Nat'l Collegiate Athletic Ass'n, 7 F. Supp. 3d 955 (N.D. Cal. 2014).

246. The court generally characterized the schools as sellers in the "college education market," but recognized that the NCAA student recruits "could also be characterized as sellers in an almost identical market for their athletic services and licensing rights." *Id.* at 973.

247. *Id.* at 963.

248. *Id.*

other."[249] Though the NCAA contended that its zero-price fixing created unique social benefits,[250] the court—applying a rule-of-reason analysis—concluded that the challenged rules yielded only "limited procompetitive benefits" that could have been achieved through less restrictive means.[251] The Ninth Circuit largely affirmed the district court's opinion, holding that the schools' agreement "to value the athletes' NILs at zero" was anticompetitive.[252]

O'Bannon demonstrates that buyer agreements to fix prices at zero may be anticompetitive. But per se rules are applied to ban certain types of anticompetitive conduct only when courts have developed enough institutional experience analyzing such conduct to conclude with confidence that it carries a high likelihood of harm and low likelihood of benefits.[253] Whatever the merits (if any) of applying the per se rule to horizontal zero-price fixing, courts currently have insufficient experience with such agreements to justify such a rule. The rule of reason offers courts—like those that issued the *O'Bannon* decisions—the flexibility needed to avoid condemning innocent conduct when grappling with unfamiliar business arrangements, making it the appropriate method of analyzing horizontal zero-price fixing. And the rule of reason itself can be tailored to fit the case at hand.[254] Basic economic theory suggests leniency toward supplier-side zero-price fixing agreements. Conversely, courts should take a harder look at buyer-side agreements, though a per se rule presently remains inappropriate.

2. Information- or Attention-Cost Fixing

A second question raised by horizontal agreements in zero-price markets is how antitrust law ought to address agreements to fix attention or information cost levels. Given that information and attention often serve the same function as money in zero-price markets, should such agreements trigger the same rule of per se liability as price-fixing cartel activity? Or

249. *Id.* at 973.

250. *Id.* ("The NCAA asserts that the challenged restrictions on student–athlete compensation are reasonable because they are necessary to preserve its tradition of amateurism, maintain competitive balance among FBS football and Division I basketball teams, promote the integration of academics and athletics, and increase the total output of its product.").

251. *Id.* at 1007.

252. O'Bannon v. NCAA, 802 F.3d 1049, 1071 (9th Cir. 2015).

253. *See, e.g.*, United States v. Topco Assocs., 405 U.S. 596, 607–08 (1972) ("It is only after considerable experience with certain business relationships that courts classify them as *per se* violations of the Sherman Act.").

254. *See* California Dental Ass'n v. FTC, 526 U.S. 756, 781 (1999).

are "cost fixing" agreements either sufficiently novel or likely to create unique benefits so as to warrant rule-of-reason treatment?

No U.S. court to date appears to have faced the question. For a real-world illustration, consider the contemporaneous privacy policy changes made by some of the largest firms then providing online search services. In 2008, Google "halved the amount of time it store[d] personal data to nine months."[255] In December 2008, Microsoft announced[256] that it was willing to shorten the length of time after which it would anonymize users' data from eighteen months to six months—provided that "its rivals did the same."[257] A few weeks later, Yahoo! announced that it would anonymize its users' data after three months.[258]

Harbour and Koslov identify this as an example of information-cost competition.[259] Yet a slightly altered set of facts might have suggested a conspiracy. Suppose that, in response to Google's announcement of a lower nine-month policy, Microsoft had announced that it was willing to adopt a six-month policy if its competitors also did so—and that, within a few weeks, both Yahoo! and Google had announced moves to a six-month policy.[260] Such behavior could be interpreted as (1) an invitation to enter an agreement to fix information costs at a given (maximum) level, followed by (2) agreement by the soliciting firm's rivals, as evidenced by their conduct. If competitors were to engage in such behavior vis-à-vis prices, their conduct would likely be a per se violation of Sherman Act § 1.[261] Under U.S. antitrust law, even agreements to fix maximum prices are per se illegal.[262]

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255. Kim Dixon, *Yahoo Cuts Data Retention to Three Months*, REUTERS (Dec. 17, 2008, 4:25 PM), http://www.reuters.com/article/2008/12/17/us-yahoo-data-idUSTRE4BG2VP20081217 [https://perma.cc/HB2A-QKZF].

256. David Burt, *Microsoft Supports Strong Industry Search Data Anonymization Standards*, TECHNET (Dec. 8, 2008, 6:23 PM), http://blogs.technet.com/b/privacyimperative/archive/2008/12/08/microsoft-supports-strong-industry-search-data-anonymization-standards.aspx [https://perma.cc/ TA3R-W4BF]. The announcement was made in response to a Europe Commission working group's opinion requesting Internet search companies to "adopt strong anonymization after 6 months." *Id.*

257. Dixon, *supra* note 255.

258. *Id.*

259. Pamela Jones Harbour & Tara Isa Koslov, *Section 2 in a Web 2.0 World: An Expanded Vision of Relevant Product Markets*, 76 ANTITRUST L.J. 769, 793–94 (2010).

260. And suppose further that Microsoft's announcement was not in reaction to the European Commission's working group opinion discussed *supra* note 256.

261. *Cf.* Ohio Valley Elec. Corp. v. Gen. Elec. Co., 244 F. Supp. 914, 923–24 (S.D.N.Y. 1965) (describing a meeting during which a representative of one rival firm "indicated to his competitors his preference for established prices in the industry," followed by adoption of substantially similar, higher prices).

262. *See* Arizona v. Maricopa Cty. Med. Soc'y, 457 U.S. 332 (1982).

At least in theory, a cartel could enter into an agreement to fix information or attention costs at a supracompetitive level.[263] Applying the per se rule to such agreements would nonetheless be premature. Courts have not yet developed sufficient institutional knowledge to conclude with certainty that these cost-fixing agreements carry the same (or a substantially similar) high likelihood of harm and low likelihood of social benefits as traditional cartel activity. It may well be that cost-fixing agreements offer unique social benefits. Consider, for example, a group of broadcast-television stations that wish to televise both programming and advertisements. Some of the stations demand new programming; others seek (presumably lower-cost) syndicated programming. Because a given program may ultimately be aired on several different channels, it would benefit all involved parties to adopt established time-slots (e.g., thirty minutes) within which a given amount of time would be devoted to programming (e.g., twenty minutes) and the remainder would be devoted to advertisements. With such an agreement in place, program creators could confidently produce twenty-minute episodes that any station could conveniently syndicate. Horizontal attention-cost fixing agreements may thus create social benefits; the frequency with which they do so remains to be seen. Absent substantial experience evaluating such agreements, rule-of-reason treatment is appropriate.

B. Tying

Tying arrangements are nominally per se illegal under U.S. antitrust law. In practice, however, proving a tying claim requires demonstrating five elements: (1) two separate products; (2) the supplier conditions the sale of one product (the "tying" product) on the customer's also acquiring the second product (the "tied" product); (3) the supplier has substantial power in the market for the tying product; (4) the arrangement is likely to substantially harm competition; and (5) a "not insubstantial volume of commerce is affected."[264] Element (2) is sometimes called the "coercion" element.[265] When the coercion element is accomplished via contract, the supplier engages in "contractual" tying; when the coercion element is

263. Such agreements may well be rare in practice—heterogeneity makes coordination more difficult. *See, e.g.*, LOUIS KAPLOW, COMPETITION POLICY AND PRICE FIXING 242 (2013). Information costs (in particular) and attention costs tend to be heterogeneous, frustrating the formation and monitoring of horizontal agreements to fix them. *See* Newman, *supra* note 3, at 178–79.

264. *See* AREEDA & HOVENKAMP, *supra* note 7, ¶ 1702.

265. *See, e.g.*, R & G Affiliates, Inc. v. Knoll Int'l, Inc., 587 F. Supp. 1395, 1399 (1984) (referring to the "coercion element").

accomplished via technological interdependence, the supplier engages in "technological" tying.[266] Contractual ties trigger a unique set of rules that raise challenges for zero-price applications.[267] Technological ties, however, generally fall under Sherman Act § 2 and are treated under the traditional monopolization standard, which does not present such challenges.[268] Thus, this Part focuses on contractual ties.

As to contractual tying arrangements, the primary challenge raised by zero-price markets relates to U.S. Supreme Court precedent referring to "sales" and "purchases." The Court has repeatedly described the conduct that satisfies the coercion element of a tying violation as "conditioning [the] *sale* of one commodity on the *purchase* of another."[269] The questions thus raised are (1) whether satisfying the coercion element of a tying violation requires proving a conditioned "sale"; (2) if so, whether a zero-price transaction can satisfy the "sale" requirement; and (3) if not, whether a zero-price transaction can satisfy the coercion element.

At least one court has squarely held that the coercion element does require a "sale," and that zero-price transactions fail to qualify as such. In *Stephen Jay Photography*, local commercial photographers alleged that a group of large, national commercial photographers had entered into illegal tying arrangements in the Norfolk, Virginia area.[270] The defendants had contracted with all of the high schools in the area to take yearbook photographs of students. While taking the yearbook photos, the defendants also took portrait photos.[271] At least according to the district court,[272] the yearbook photos were provided "at no charge" to the students; the portraits were not.[273] The district court dismissed the plaintiffs' claim, reasoning that "a tying arrangement cannot exist when the tying product is not sold

266. *See* AREEDA & HOVENKAMP, *supra* note 7, ¶ 1757a (discussing the difference between contractual and technological tying).

267. *See id.* ¶ 1702 (relating the black-letter legal elements of a contractual tying violation).

268. *See id.* ¶ 1757a ("Most challenges to technological ties are made under § 2 of the Sherman Act.").

269. Jefferson Par. Hosp. Dist. No. 2 v. Hyde, 466 U.S. 2, 12–13 (1984) (emphasis added) (quoting Times-Picayune Pub'g v. United States, 345 U.S. 594, 605 (1953)); *accord* N. Pac. Ry. v. United States, 356 U.S. 1, 10 (1958); *see also id.* at 5 ("[A] tying arrangement may be defined as an agreement by a party to sell one product but only on the condition that the buyer also purchases a different (or tied) product."); Illinois Tool Works Inc. v. Independ. Ink, Inc., 547 U.S. 28, 45–46 (2006) (holding that patents do not create a presumption of market power in markets for tying products).

270. Stephen Jay Photography, Ltd. v. Olan Mills, Inc., 903 F.2d 988, 990 (4th Cir. 1990).

271. *Id.*

272. The appellate court read the record to indicate that one of the defendants did charge a "nominal fee" to "some senior students" for the yearbook photos. *Id.* at 991.

273. *Id.*

to the consumer, but is provided free of charge."[274] Using a similar analysis to address inverse facts (positive-price tying product, zero-price tied product), a court applying state unfair-competition law dismissed a complaint that alleged a tying scheme involving broadcast television.[275]

The proper understanding of the coercion element, however, focuses on the question of coercion itself—not on a formalistic inquiry into whether there was a "sale," however defined. As the Supreme Court explained in *Jefferson Parish*, "not every refusal to sell two products separately can be said to restrain competition."[276] It is not suppliers' requiring a concurrent "sale" (or "purchase") per se that threatens anticompetitive harm. Instead, it is the presence of coercion—as the leading treatise puts it, the threat of harm occurs where "[t]he customer takes the second . . . product from the defendant, not because he prefers it but only because he must take it in order to obtain a desired . . . product, either at all or on favorable terms."[277]

Where the U.S. Supreme Court has referred to the coercion element as the "conditioning" of a "sale," it has done so when analyzing traditional, positive-price markets.[278] The language of Sherman Act § 1, on which zero-price tying claims would likely be predicated,[279] requires only a "contract," not a "sale."[280] And courts applying the common law of contracts have long recognized that zero-price agreements predicated on one party's exchanging information[281] or attention[282] can be valid contracts.[283] Thus, the question of whether zero-price transactions are "sales" for purposes of tying analysis (which the *Stephen Jay Photography* court incorrectly treated as dispositive) is immaterial.[284]

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274. *Id.* (appearing to quote the district court's decision without attribution (internal quotation marks omitted)). The appellate court affirmed on somewhat different grounds, basing its reasoning on the fact that the defendants did not require students to purchase portrait photos, but rather made yearbook photos available with or without a portrait purchase). *Id.*

275. *See* Morrison v. Viacom, Inc., 78 Cal. Rptr. 2d 133 (Cal. Ct. App. 1998).

276. Jefferson Par. Hosp. Dist. No. 2 v. Hyde, 466 U.S. 2, 11 (1984).

277. AREEDA & HOVENKAMP, *supra* note 7, ¶ 1702.

278. Even the *Stephen Jay Photography* court prefaced its quoting of such language with the qualifier "[t]ypically." *Stephen Jay Photography*, 903 F.2d at 991.

279. Clayton Act § 3 prohibits tying, but—unlike Sherman Act § 1—§ 3 explicitly requires a "sale or contract for sale of goods, wares, merchandise, machinery, supplies, or other commodities." 15 U.S.C. § 14 (2012). Since tying claims can also be pursued under Sherman Act § 1, plaintiffs can be expected to avoid the "sale" issue by filing under § 1.

280. 15 U.S.C. § 1 (2012).

281. *E.g.*, Gottlieb v. Tropicana Hotel and Casino, 109 F. Supp. 2d 324, 329–30 (E.D. Pa. 2000).

282. *E.g.*, Jennings v. Radio Station KSCS, 708 S.W.2d 60, 61–62 (Tex. App. 1986).

283. *See* Newman, *supra* note 3, at 172 (arguing that such precedent supports the conclusion that attention and information costs may be exchanged, bringing zero-price transactions within the scope of the antitrust laws).

284. What constitutes a "sale" for broader legal purposes is an open question. Article 2 of the

Given that the coercion element does not hinge on whether there was a "sale," it is immaterial whether zero-price transactions involve "sales" or "purchases." Rather, the question is whether coercion itself can occur. Coercion may be present where one of the products in a tying arrangement is offered at a price of zero. In *Lucas Industries, Inc.*, for example, the court rightly rejected the defendant's argument that coercion was lacking because the tying product was offered for "no charge."[285] Lucas, the defendant, produced and distributed diesel fuel-injection systems, as well as technical literature explaining how to repair the systems.[286] The plaintiff alleged that Lucas conditioned the availability of its technical literature (the tying product) on its customers' agreeing to buy Lucas' fuel-injection systems (the tied product).[287] In response, Lucas argued both that the technical literature was not a "separate product" (because Lucas did not "sell its technical literature to anyone but provide[d] the technical information at no cost")[288] and that the coercion element was not met.[289] The court rejected both arguments, reasoning that in light of Lucas' large market share, it was reasonable to infer that Lucas was "using its control over technical literature to force [customers] to purchase pumps and parts."[290]

The *Microsoft* case presented the inverse situation: a positive-price tying product and a zero-price tied product. One of the government's theories of liability (successful at the trial level) was that Microsoft had contractually and technologically tied its web browser to its dominant OS.[291] The D.C. Circuit reversed the trial court's application of the modified per se rule, holding that the novelty of both Microsoft's challenged conduct and the relevant markets necessitated a rule-of-reason

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Uniform Commercial Code, for example, defines a "sale" as "the passing of title from the seller to the buyer *for a price*." U.C.C. § 2-106(1) (AM. LAW INST. & UNIF. LAW COMM'N 2014) (emphasis added). Courts have in other areas suggested a broader reading. *E.g.*, Baum v. Astrazeneca LP, 605 F. Supp. 2d 669, 677 (W.D. Pa. 2009) (observing, as to state employment law, that "[t]he precise contours of a 'sale' naturally differ across industries, markets, and even cultures").

285. Lucas Indus. v. Kendiesel, Inc., No. 93−4480, 1995 WL 350050, at *4 (D.N.J. June 9, 1995).

286. *Id.* at *1.

287. *Id.* at *4. The challenged conduct could be analyzed as a hybrid tying-exclusive dealing scheme: Lucas used its technical literature as the tying product and its fuel-injection systems as the tied product, but it went a step further by requiring that its customers buy all their fuel-injection systems from Lucas. *See id.*

288. *Id.*

289. *Id.* at *5.

290. *Id.*

291. *See* United States v. Microsoft Corp., 253 F.3d 34, 84 (D.C. Cir. 2001); *see also* John M. Newman, *Anticompetitive Product Design in the New Economy*, 39 FLA. ST. U. L. REV. 681, 720−22 (2012) (analyzing *Microsoft* under the rubric of product-design conduct).

analysis.[292] The case was settled without a substantive ruling on the government's tying claims. Yet—given that Microsoft enjoyed a share of at least 80% (and perhaps more than 95%) in the OS market[293] and essentially refused to license its OS to downstream customers unless they also licensed its web browser[294]—the coercion element may well have been satisfied. The absence of a positive price charged for Microsoft's web browser did not necessarily preclude the possibility of anticompetitive harm.[295]

Where a defendant has no economic interest relating to the zero-price product, however, no liability should arise from an apparent "tying" arrangement. Thus, for example, in *Directory Sales Management Corp. v. Ohio Bell Telephone Co.*, the Sixth Circuit affirmed the district court's rejection of the claim that a telephone services provider illegally tied "free yellow pages listing[s]" to telephone services.[296] Not only were businesses allowed to refuse the free listings, but the defendant had no economic interest in tying the two products together—it already enjoyed a monopoly in the telephone services market, and it truly charged its services subscribers nothing for the free listings.[297] Similarly, in a case alleging that a charitable organization had engaged in illegal tying, the Ninth Circuit declined to find liability—the seller of the tying product had no economic interest in the "tied" product (an examination form provided free of charge).[298] A district court likewise rejected a claim predicated on a television provider's "tying" the production of public service announcements (PSAs), in part because the defendant's time spent producing PSAs was charitably donated.[299]

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292. *Microsoft*, 253 F.3d at 84.

293. *Id.* at 54.

294. Microsoft's licensing practices were more complicated than traditional tying arrangements—rather than simply predicating the licensing of its OS on the licensing of its web browser, Microsoft (for example) prohibited customers from removing the "desktop icons, folders, and Start menu entries" for its web browser from its OS. *Id.* at 61.

295. As Bork explained, Microsoft "was earning supracompetitive returns on the monopoly it was defending, while Netscape, forced to distribute its Navigator free, had no income in that market to cover its fixed costs. Understandably, Netscape gave up a contest it could not win." Bork, *supra* note 143, at 55.

296. Directory Sales Mgmt. Corp. v. Ohio Bell Tel. Co., 833 F.2d 606, 608 (6th Cir. 1987).

297. *Id.* at 609–10. The defendant required the third-party phonebook publisher to provide the free listings, apparently believing such listings served the public interest—the defendant was, at the time of the agreement with the publisher, a subsidiary of AT&T before its breakup in 1984. *Id.* at 608.

298. *See* Rickards v. Canine Eye Registration Found., Inc., 704 F.2d 1449, 1455 (9th Cir. 1983).

299. *See* Drake v. Cox Commc'ns, Inc., No. 10–2671–JTM, 2011 WL 2680688, at *2 (D. Kan. 2011). Additionally, it is not clear that the plaintiff alleged that the defendant actually tied the PSAs to any other "product." *Id.* at *4.

C. Exclusive Dealing

Though precedent in the area is sparse, at least one U.S. court has squarely confronted an exclusive-dealing claim involving a zero-price market. In *Feitelson v. Google, Inc.*, a putative class of consumers challenged agreements allegedly made between Google, creator of the popular Android mobile OS, and various mobile telephone manufacturers (OEMs).[300] According to the complaint, Google licensed the Android OS to various OEMs "for free."[301] Google also allowed OEMs to "pre-load," free of charge, its popular applications (e.g., YouTube) onto mobile telephones.[302] The gravamen of the complaint was exclusive dealing: Google required OEMs that pre-loaded Google applications to "also agree to make Google the default search engine for all 'search access points' on the device."[303] The relevant markets were alleged to be the U.S. markets for "general search" and "handheld general search."[304]

The court held that the complaint failed to satisfactorily allege the substantive elements required for a successful exclusive-dealing claim. Specifically problematic was the plaintiffs' failure "to demonstrate substantial foreclosure of competition in [the relevant] markets."[305] The court reasoned that a 51.7% share of the U.S. *smartphone OS* market did not support a finding of substantial foreclosure in the markets for "general search" or "handheld general search," particularly given that the exclusive-dealing arrangements affected only a subset of devices equipped with Google's OS.[306] That said, at least as to the handheld general search market, the court called its decision "a close call."[307]

The *Feitelson* court's focus on substantial foreclosure (or lack thereof) in the relevant markets may have been misdirected. Google obtained default search status, but it did not prevent OEMs from including other search providers as alternative options. Thus, Google's conduct could be viewed as merely obtaining preferential treatment from a downstream customer. On this view, Google offered something of value—its popular applications at zero prices—in exchange for an advantageous promotional

300. Feitelson v. Google, Inc., 80 F. Supp. 3d 1019, 1022 (N.D. Cal. 2015).
301. First Amended Class Action Complaint at 3, Feitelson v. Google, Inc., 80 F. Supp. 3d 1019 (N.D. Cal. 2015) (No. 5:14-cv-02007-BLF).
302. *Id.*
303. *Feitelson*, 80 F. Supp. 3d at 1023 (quoting First Amended Class Action Complaint at 13-14).
304. *Id.* (quoting First Amended Class Action Complaint at 9, 31).
305. *Id.* at 1031.
306. *Id.* at 1032.
307. *Id.*

placement. Courts have routinely declined to condemn instances of suppliers' giving incentives for preferential promotional treatment while allowing rivals' products to remain available to consumers.[308] So long as the *applications* market was (or markets were) sufficiently competitive,[309] such that Google's search rivals could offer similar benefits to OEMs in an attempt to gain similar preferential promotional treatment (i.e., default status), it is difficult to see any potential harm arising from the conduct challenged by the plaintiffs in *Feitelson*.

In general, the *Feitelson* court was rightly skeptical of the plaintiffs' pleadings,[310] demanding greater factual rigor before exposing the defendant to extensive discovery requirements. This skepticism is in keeping with a healthy suspicion of claims involving exclusive dealing, which—in zero-price contexts as in more traditional markets—often carries with it procompetitive benefits.[311] While its focus on the question of substantial foreclosure in the relevant markets may have been misplaced, the *Feitelson* court encouragingly did more than mere "hand waving"[312] when confronted by zero prices.

D. Predatory Pricing

In theory, though perhaps no longer in practice,[313] a defendant can violate the antitrust laws by predatory pricing. The modern standard requires plaintiffs to satisfy two elements in order to make out a predatory-

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308. *See, e.g.*, El Aguila Food Prods., Inc. v. Gruma Corp., 301 F. Supp. 2d 612, 628–31 (S.D. Tex. 2003); R.J. Reynolds Tobacco Co. v. Philip Morris Inc., 199 F. Supp. 2d 362, 379–86 (M.D.N.C. 2002); Louisa Coca-Cola Bottling Co. v. Pepsi-Cola Metro. Bottling Co., 94 F. Supp. 2d 804, 813–16 (E.D. Ky. 1999).

309. For an argument that the relevant applications markets were *not* competitive, see Benjamin Edelman, *Does Google Leverage Market Power Through Tying and Bundling?*, 11 J. COMPETITION L. & ECON. 365, 390–91 (2015) (addressing Google's conduct under the rubric of tying).

310. Russia's Federal Anti-Monopoly Service ("FAMS") was not as skeptical of a similar complaint filed by Yandex NV, then Russia's largest search engine, against Google—in September 2015, the FAMS ruled that Google's "requir[ing] equipment makers to pre-stall its services, including search, to get the Google Play application store on their devices" violated Russia's antitrust laws. Ilya Khrennikov, *Russia Says Google Violated Antitrust Laws*, BLOOMBERG BNA (Sept. 14, 2015), http://antitrust.bna.com/atrc/7031/split_display.adp?fedfid=75712154&vname=atdbulallissues&jd=a0h2r0t8b2&split=0.

311. *See* AREEDA & HOVENKAMP, *supra* note 7, ¶ 1810.

312. *Compare Feitelson*, 80 F. Supp. 3d 1019, *with* Evans, *supra* note 6, at 72.

313. *See* Thomas J. Horton, *Unraveling the Chicago/Harvard Antitrust Double Helix: Applying Evolutionary Theory to Guard Competitors and Revive Antitrust Jury Trials*, 41 U. BALT. L. REV. 615, 648 n.194 (2012) ("Since *Matsushita* was decided in 1986, no plaintiff, including the Department of Justice, has succeeded in satisfying the two prong 'below cost + recoupment' standard.") (quoting ANDREW I. GAVIL ET AL., ANTITRUST LAW IN PERSPECTIVE: CASES, CONCEPTS AND PROBLEMS IN COMPETITION POLICY 672, 699–700 (2d ed. 2008) (internal quotation marks omitted)).

pricing claim: (1) the defendant sold its product at prices below some measure of its own cost, and (2) after rivals or potential entrants are neutralized, the defendant is likely to recoup its losses in the form of monopoly profits. Gal and Rubinfeld helpfully distinguish between two types of predatory-pricing schemes involving zero prices: (1) "short-term provision of free goods . . . based on a two-staged strategy in which the price is raised and initial losses recouped once the threat of entry or expansion is lifted"; and (2) "those [cases] in which the free product will *always* be provided for free."[314] The first, which allows a fairly straightforward analysis using traditional antitrust principles, is well-recognized as a potential violation.[315] The second is less well-explored.

The most notable litigated case involving zero-price-related conduct that "can be seen as a form of predatory pricing" is *United States v. Microsoft*.[316] Broadly speaking, Microsoft competed in both the OS market (where its Windows OS held a dominant position) and the web browser market (with its Internet Explorer, or "IE" browser). Though the government did not pursue a predatory-pricing theory on appeal, it did so at the trial-court level.[317] One treatise observes that because "Microsoft makes enough revenue from collateral sources—and the marginal cost of another copy of the [IE] Web browser, especially in electronic form, is so low—that its price does not seem predatory."[318] Yet, the fact that the marginal costs to Microsoft of producing and distributing copies of IE were low does not preclude a predation scheme on its part. Microsoft still needed to recoup the fixed costs of producing IE, which were high (well over $100 million per year).[319] And the first point (that Microsoft made substantial revenue from related sources) may actually indicate, rather than obviate, the possibility of predation. As Leslie points out, "Microsoft did not recoup in the market in which the predation occurred—browsers—but

314. Gal & Rubinfeld, *supra* note 4, at 3.

315. *See, e.g.*, *id.*; Gerald F. Hayden Jr., *Predatory Pricing: The Combines Investigation Act—Subsection 34(1)(c), a Violation in Search of a Standard*, 21 OSGOODE HALL L.J. 537, 546 (1983).

316. Christopher R. Leslie, *Predatory Pricing and Recoupment*, 113 COLUM. L. REV. 1695, 1722 (2013).

317. The Government alleged as much in its case against Microsoft. Plaintiffs' Joint Proposed Findings of Fact, United States v. Microsoft Corp., 1999 WL 1419040 (D.D.C. Dec. 20, 1999) (Civ. Action No. 98−1232 (TPJ)), https://www.justice.gov/atr/us-v-microsoft-proposed-findings-fact-2 ("Microsoft set a zero price for its browser for the purpose of depriving Netscape of revenue and protecting its operating system monopoly.").

318. HERBERT HOVENKAMP ET AL., IP AND ANTITRUST: AN ANALYSIS OF ANTITRUST PRINCIPLES APPLIED TO INTELLECTUAL PROPERTY LAW § 13.5(b) (2015).

319. *See* Leslie, *supra* note 316, at 1722.

it did recoup elsewhere."[320] Specifically, Microsoft was able to recoup its IE-related losses in the complementary OS market.

The *Microsoft* facts illustrate an important point regarding antitrust scrutiny of predatory-pricing in zero-price markets: ignoring the interconnected way(s) in which suppliers profit from zero-price products will yield faulty results. These errors may arise in three ways.

First, by failing to take into account the all-in "price" charged—which may include information or attention costs—courts may wrongly find below-cost pricing. Gal and Rubinfeld suggest that the below-cost pricing "requirement is easily met with regard to free goods: zero is clearly below cost."[321] Under this view, the below-cost pricing requirement would essentially be obviated in zero-price markets.[322] To avoid such a result, antitrust law should require proof of an all-in price that would include any attendant information or attention costs, then determine whether that price was set below the defendant's cost.[323] This two-step analysis is necessary because the recoupment element alone may not be enough to prevent false positives.[324] Firms offering zero prices must always recoup their losses somehow—but not in the sense contemplated by the predatory-pricing recoupment requirement. Courts that have conclusorily found the below-cost pricing element to be satisfied may well be overly quick to find recoupment (in the predatory-pricing sense) given this inherent structural feature of zero-price markets. To avoid false positives, satisfying the

320. *Id.*

321. Gal & Rubinfeld, *supra* note 4, at 41.

322. On the *Microsoft* facts, the problem of underestimating price due to unrecognized information or attention costs was not present—Microsoft did not profit via extracting information or attention from users of its Internet browser.

323. In a state antitrust law case applying the federal predatory-pricing standard, the Supreme Court of Wisconsin espoused a somewhat similar requirement. There, the Court held that "advertising revenue directly derived from increased circulation . . . must be considered when determining whether below-cost pricing [to readers] occurred." Conley Publ'g. Grp. Ltd. v. Journal Commc'ns, Inc., 665 N.W.2d 879, 895 (Wis. 2003). Similarly, in a California unfair competition case, the court rejected a plaintiff's argument that "the price [the defendant] charges to watch a video—zero—is less than what it costs [the defendant] to maintain the video on its server." Cammarata v. Bright Imperial Ltd., No. B218226, 2011 WL 227943, at *5 (Cal. Ct. App. as last modified on denial of rehearing Feb. 24, 2011). Recognizing that the defendant profited via attention costs, the court concluded that if the plaintiff's "subscription-based website lost revenue . . . it was because the [defendant's] business model is more efficient, not because of alleged predatory pricing." *Id.* at *7. Finally, in a Maryland antitrust case, the court rejected a plaintiff's claim that the defendant's offering "electronic connectivity services" at zero prices to doctors constituted predatory pricing, where the defendant charged positive (indeed, high) prices to insurance companies for access to the services. Martello v. Blue Cross & Blue Shield of Maryland, Inc., 795 A.2d 185, 199 (Md. Ct. Spec. App. 2002).

324. Gal and Rubinfeld suggest, to the contrary, that "[a] requirement of potential recoupment, as required in the U.S., solves this false positive problem." Gal & Rubinfeld, *supra* note 4, at 43.

below-cost pricing element as to zero-price products should require calculation of an all-in price against which to measure cost.[325]

Second, courts may wrongly overlook actual predation by failing to take into account sources of profit that do not depend on charging a positive price for the relevant product.[326] Put another way, focusing the recoupment analysis too narrowly in a zero-price market context may yield the incorrect conclusion that recoupment is impossible—how could zero prices yield monopoly profits?[327] Taking into account a defendant's related, positive-price activity (e.g., Microsoft's selling OSs) provides the (potential) answer.

Third, courts may overlook the possibility of a classically structured predatory-pricing scheme that substitutes information or attention overcharges for supracompetitive prices. As to other types of potentially anticompetitive conduct, some analysts have made the mistake of turning a blind eye to the exchanged nature of information and attention costs.[328] Yet a dominant firm could, at least in theory, establish low levels of information or attention costs (e.g., by including no advertisements with the relevant product) during a predation period, then raise cost levels to a supracompetitive level (e.g., an onerous privacy policy or level of advertisements) during a recoupment period. Avoiding false negatives requires recognizing that attention or information often stand in for money in zero-price markets.[329]

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325. Of course, doing so will be difficult. Yet, given that plaintiffs have uniformly failed to prove predatory-pricing claims after *Matsushita*, *see supra* note 313, even *without* the added complication of calculating an all-in price, the objection seems purely academic. If it is already, in practice, impossible to prove a predatory pricing violation, it would be a hollow objection to contend that the present proposal will raise the bar even higher. The false-positive problems associated with declining to do so, however, would not be subject to the same critique. It should also be noted that this discussion assumes that the below-cost pricing requirement serves a useful purpose, a point not uniformly agreed upon. *See* Leslie, *supra* note 316, at 1765 ("Predatory pricing can be anticompetitive and reduce consumer welfare even in the absence of recoupment. This makes recoupment an inappropriate element for an antitrust violation.").

326. *See* Gal & Rubinfeld, *supra* note 4, at 43 ("[A] narrow application of the recoupment requirement might create another set of errors: false negatives.").

327. As Wright and Manne put it: "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."). 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-internetmonopolist-a-reply-to-professor-wu/ [http://perma.cc/L4UF-UC7K].

328. See Newman, *supra* note 3, at 190, 193–94 for examples.

329. *See id.* at 202; *cf.* HOVENKAMP ET AL., *supra* note 318, § 13.5(b) ("Alternatively, [companies] may give away products (such as television or radio broadcasts or Internet services) in exchange for the attention of their customers.").

E. Refusals to Deal

Multiple antitrust investigations and lawsuits have involved possible refusals to deal in zero-price markets. Certainly the most high-profile to date have been the long-running, much-debated, multijurisdictional inquiries into whether Google, Inc.'s search practices anticompetitively favor its own vertically integrated services. Yet these inquiries are not entirely unique; U.S. courts have also analyzed refusals to deal in other zero-price contexts.

In *Kinderstart.com*, the plaintiff, Kinderstart, operated a specialized search engine that provided "links to information and resources on subjects related to young children."[330] According to a complaint Kinderstart filed against Google, Inc., Google engaged in various anticompetitive strategies designed to harm competition, including a refusal to deal: "the practice of 'Blockage' of websites by 'delisting, de-indexing and censoring' websites"[331] from the search results delivered to Google's users. The court dismissed Kinderstart's complaint for various defects. Though the U.S. Supreme Court has never explicitly required a "prior voluntary course of dealing" as an element to bringing a successful refusal-to-deal claim, lower courts, following the reasoning of *Trinko*,[332] have generally adopted this element as a prophylactic gatekeeper.[333] Thus, as to the *Kinderstart.com* plaintiff's refusal-to-deal claim, the court distinguished the facts alleged from those in *Aspen Skiing Co.*[334]—unlike the defendant in *Aspen Skiing Co.*, Google had never voluntarily dealt with Kinderstart.[335]

In *LiveUniverse, Inc. v. MySpace, Inc.*, the plaintiff operated a social-networking website (vidilife.com) that competed with defendant MySpace's website.[336] Allegedly, MySpace altered its website so as to prevent its users from viewing or posting links to videos hosted at

330. Kinderstart.com LLC v. Google, Inc., No. C 06-2057 JF (RS), 2006 WL 3246596, at *1 (N.D. Cal. Nov. 7, 2006).

331. *Id.* at *3.

332. Verizon Commc'ns Inc. v. Law Offices of Curtis V. Trinko, LLP, 540 U.S. 398 (2004).

333. *See, e.g.*, Am. Cent. E. Texas Gas Co. v. Union Pac. Res. Grp. Inc., 93 Fed. App'x. 1, 8 (5th Cir. 2004) (citations omitted) ("Courts admittedly must be cautious in finding exception to the right to refuse to deal. However, the court notes that [defendant] refused to deal in the context of a prior course of dealing with ACET.").

334. Aspen Skiing Co. v. Aspen Highlands Skiing Corp., 472 U.S. 585 (1985).

335. *Kinderstart.com LLC*, 2006 WL 3246596, at *10.

336. LiveUniverse, Inc. v. MySpace, Inc., No. CV 06−6994 AHM (RZx), 2007 WL 6865852, at *1 (C.D. Cal. June 4, 2007), *aff'd*, 304 Fed. App'x. 554 (9th Cir. 2008).

vidilife.com.[337] The plaintiff sued MySpace, claiming that such conduct amounted to a refusal to deal in violation of Sherman Act § 2.[338] In a decision affirmed by the Ninth Circuit, the district court dismissed the complaint. Again following the reasoning of *Trinko*, the *LiveUniverse, Inc.* district court reasoned that MySpace's merely allowing its users to reference other websites did not amount to a prior voluntary course of dealing between MySpace and the plaintiff.[339]

Two years later, the court in *Facebook, Inc. v. Power Ventures, Inc.*,[340] rejected a somewhat similar claim against social-network Facebook (which had, by then, surpassed MySpace in terms of U.S.-based users).[341] In *Power Ventures*, a rival alleged that Facebook anticompetitively "prohibit[ed] its users from logging into Facebook through third-party sites."[342] The court dismissed the rival's antitrust counterclaim, rejecting "the proposition that Facebook is somehow obligated to allow third-party websites unfettered access to its own website simply because some other third-party websites grant that privilege to Facebook."[343] As in the *Kinderstart.com* and *Liveuniverse* cases, no prior voluntary course of dealing existed between the alleged monopolist (here, Facebook) and its rival(s).

Taken together, these cases suggest that refusals to deal in zero-price markets (as elsewhere) will likely be unsuccessful absent a prior direct relationship between rivals.[344] Thus, to take the example of the charges leveled at Google, noted above, these cases suggest that—without more—mere allegations that Google manipulated search results so as to favor its own affiliate websites would likely not pass muster under U.S. antitrust law. If, however, as a leaked FTC Staff Report suggested, such manipulations occur following a direct, "long-established, voluntary, and mutually beneficial"[345] relationship between rivals, a rival alleging an

337. *Id.*

338. *Id.*

339. *Id.* at *13.

340. No. C 08–05780 JW, 2010 WL 3291750 (N.D. Cal. July 20, 2010).

341. JR Raphael, PCWORLD, *Facebook Overtakes MySpace in U.S.* (June 16, 2009, 3:35 PM), http://www.pcworld.com/article/166794/Facebook_Overtakes_MySpace_in_US.html.

342. *Power Ventures*, 2010 WL 3291750, at *13.

343. *Id.*

344. *See* David Golden, *Refusals to Deal in the Big Data Era*, LAW360 (Oct. 27, 2014, 10:14 AM), http://www.law360.com/articles/589545/refusals-to-deal-in-the-big-data-era [perma.cc/X4L7-K6QQ] (observing that "[n]o direct contractual relationship existed between Power Ventures and Facebook").

345. *See* Memorandum to FED. TRADE COMM'N, SUBJECT: GOOGLE, INC. 88 (Aug. 8, 2012) http://graphics.wsj.com/google-ftc-report/img/ftc-ocr-watermark.pdf.

anticompetitive refusal to deal would enjoy a relatively higher likelihood of success in court.

F. Mergers

Mergers and acquisitions affecting zero-price markets present unique issues—and a cautionary tale. The most critical type of error made in this arena to date, and thus the issue that the following discussion focuses on, is that of false negatives: concluding that transactions are unlikely to harm competition where such harm is, in fact, likely to occur.[346] The most certain way to make such errors is to fail even to consider a source of potential harm, which some analysts have (unfortunately) done in the past when confronted with transactions involving zero-price markets. By failing to conceive of zero-price markets as such, analysts deprive themselves of any chance to detect probable anticompetitive effects.

The likelihood of such failures appears to vary depending on the particular zero-price strategies being employed by market participants. Specifically, analysts appear more likely to recognize the possibility of harm where freemium or complementary-products strategies are employed.[347] This is likely so because the relatively close nexus between zero- and positive-price products in such markets makes them closer analogues to traditional positive-price markets. Thus, for example, in *United States v. H & R Block, Inc.*,[348] the government successfully challenged the proposed acquisition of TaxACT by H & R Block. Prior to its proposed acquisition, TaxACT had long employed a freemium strategy, offering "free" basic "digital do-it-yourself (DDIY) federal tax return preparation services in addition to positive-price "deluxe" editions and state returns.[349] Thus, there was a close nexus between TaxACT's zero- and positive-price products.[350] Competitors followed suit, and offering some combination of "free" and paid DDIY services become the industry norm.[351] Having defined the relevant market so as to include both positive- and zero-price DDIY products, the court concluded that the proposed

346. *See* Newman, *supra* note 3, at 193.

347. For an explanation of the three primary types of sustainable zero-price business models, see Newman, *supra* note 3, at 154–57.

348. 833 F. Supp. 2d 36 (D.D.C. 2011).

349. *Id.* at 43, 46.

350. *See id.* at 88 ("[B]ecause free DDIY products [were] often packaged with other paid products, these 'free' products actually provide[d] the companies with a positive average revenue per free unit.").

351. *Id.* at 48 ("Today, free offers in various forms are an entrenched part of the . . . market.").

transaction would likely lessen competition in that market.[352] Among other potential sources of harm, the court held that the transaction would have reduced head-to-head competition—including price and quality competition involving "free" products—between the defendants.[353]

Analysts appear *less* likely to recognize the possibility of harm where zero prices are charged to customers on one side of a multi-sided market. The temptation is to focus solely on potential harm to customers on the positive-price side of the market, ignoring nonmonetary harm to customers on the zero-price side. For example, in the late 1990s, deregulation of the broadcast-radio industry led to a massive wave of mergers and acquisitions, many of them reviewable by DOJ.[354] DOJ's analyses of both market definition and market power addressed solely prices to advertisers; DOJ did not consider potential harm to listeners.[355] Yet, recent empirical research suggests such harm did occur, in the form of greater attention costs (i.e., a higher ratio of advertisements to content), in many markets.[356]

The problem of such false negatives is substantial, and may well be increasing in magnitude along with the general proliferation of zero-price products. Multiple recent high-profile mergers have involved zero-price products, including (perhaps most notably) the Facebook–Instagram acquisition. When Facebook's $1 billion acquisition of Instagram (a company with zero revenue and only a handful of employees) was announced, industry observers almost immediately identified eliminating competition as the probable incentive for the deal.[357] The two firms offered what were likely the two zero-price photo-sharing social networks most popular among consumers—yet the FTC unanimously cleared the acquisition.[358] Since the FTC offered no guidance as to its decision, it is

352. *Id.* at 45.

353. *Id.* at 85.

354. For an extended discussion of this history, see Newman, *supra* note 3, at 190–93; *see also* Maurice E. Stucke & Allen P. Grunes, *Why More Antitrust Immunity for the Media Is a Bad Idea*, 105 NW. U. L. REV. 1399, 1411–15 (2011).

355. *See* Joel I. Klein, Acting Ass't Atty Gen., Antitrust Div., Dep't of Justice, Speech at the ANA Hotel: DOJ Analysis of Radio Mergers 7–19 (Feb. 19, 1997), http://www.justice.gov/atr/public/speeches/1055.pdf.

356. *See* Mooney, *supra* note 52, at 19.

357. *See, e.g.*, Om Malik, *Here Is Why Facebook Bought Instagram*, GIGAOM (Apr. 9, 2012, 11:28 AM), https://gigaom.com/2012/04/09/here-is-why-did-facebook-bought-instagram/ [https://perma.cc/6BKA-MTWC] ("Facebook was scared shitless and knew that for the first time in its life it arguably had a competitor that could not only eat its lunch, but also destroy its future prospects. Why? Because Facebook is essentially about photos.").

358. Alexei Oreskovic, *FTC Clears Facebook's Acquisition of Instagram*, REUTERS (Aug. 22, 2012, 8:39 PM), http://www.reuters.com/article/2012/08/23/us-facebook-instagram-idUSBRE87L14W20120823.

impossible to know whether the agency adequately evaluated potential anticompetitive harm to users (not just to advertisers). But, if FTC followed the lead set by DOJ in the broadcast-radio context, it may have ignored a source of potential harm.

Merger analyses must include scrutiny of the zero-price side of multisided platforms. The demand curves exhibited by customers on one side of a platform (e.g., advertisers) can be quite different than those exhibited by customers on the other side (e.g., consumers).[359] To take an example, suppose that the candidate relevant market is "organic search," that the market is dominated by three large firms, and that the two largest firms have proposed a merger. The prevailing business model used by online search providers is two-sided.[360] Providers charge zero prices (but attention costs) to users and positive prices to advertisers.

Advertisers may view search results and, for example, online email services as close substitutes: both are means of delivering ads to consumers. As a result, at least one court has held that "search-based advertising is reasonably interchangeable with other forms of Internet advertising."[361] In fact, advertisers may even view offline venues like billboards as fairly close substitutes for online platforms.[362] To a user, however, social networks and email services may not be as closely substitutable, and billboards are so distant as to be irrelevant. In such a

359. 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); tellingly, the amount of time devoted to advertisements increases most sharply during times of the day when listeners have fewer ready substitutes. Mooney, *supra* note 52, at 2.

360. *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?*, J. COMPETITION L. & ECON. 517, 518 (2014) ("[W]e discuss and describe Google's business model, which is primarily a two-sided platform to sell advertising."). Ratliff & Rubinfeld conclude that because "feedback effects" link the two sides of search platforms, the relevant market is "at least as broad as a two-sided search-advertising market." *Id.* at 519. Their conclusion relies heavily on the fact that Google could not profitably provide organic search results without also selling advertising. *Id.* at 536. Yet a similar observation could be made about any business. Take, for example, a grocery store: the store could not profitably purchase food without also selling it. The bare fact that a given competitive practice is related to, or even necessary for, competition in a different area does not compel a single antitrust market. Where, as with search, the two sides of a platform exhibit different demand curves, it seems appropriate to follow the *American Express Co.* court in reasoning that the two—though "deeply interrelated"—may constitute separate markets. *See supra* note 97.

361. Person v. Google, Inc., No. C 06−7297 JF (RS), 2007 WL 1831111, at *3 (N.D. Cal. June 25, 2007).

362. As Waller points out, "[i]t is an open question whether online advertising is even a separate relevant market from its offline alternatives." Waller, *supra* note 90, at 1782. Goldfarb and Tucker find that "online display advertising is a substitute for offline display (primarily billboard) advertising." Avi Goldfarb & Catherine Tucker, *Advertising Bans and the Substitutability of Online and Offline Advertising*, 48 J. MKTG RESEARCH 207, 208 (2011).

scenario, advertisers may exhibit relatively elastic demand, meaning they could easily substitute away to defeat a price increase by the merged firm. Yet consumers may exhibit relatively inelastic demand, meaning they are more likely to be harmed by attention- or information-cost overcharges imposed by the merged firm as an exercise of the post-merger increase in its market power.

Focusing solely on potential harm to positive-price customers (in the above example, advertisers) thus not only overlooks one source of potential harm—it overlooks the most likely source of potential harm. As a general matter, ignoring harm to zero-price customers has caused and, unless the practice is stopped, will continue to cause harm to competition and consumer welfare.

V. CONCLUSION

Antitrust law and economics understandably depend heavily on the presence of positive prices. Products are, however, increasingly being offered in exchange for customers' attention and information instead of their money. The antitrust enterprise finds itself confronted with fundamental questions about its own role and efficacy in these markets. And, at least in their current state, many of the standard tools used by modern antitrust analysts will be difficult or impossible to use in the presence of zero prices.

Yet the framework underlying such tools often proves to be "supple enough"[363] for use in zero-price markets. Moreover, while some of the extant case law gives reason for concern, at least a few courts have squarely confronted the unique issues presented by zero prices. Those courts have not always done so perfectly, but they have at least tentatively begun the process of modernization. That process is of vital, and growing, importance. For antitrust law to play its congressionally mandated role of safeguarding competition, it must continue to adapt and evolve in the face of zero-price markets.

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363. Richard A. Posner, *Antitrust in the New Economy*, 68 ANTITRUST L.J. 925, 925 (2001) (arguing that the antitrust enterprise is "supple enough, and its commitment to economic rationality strong enough, to take in stride the competitive issues presented by the new economy").