THE HIDDEN COSTS OF FREE GOODS: IMPLICATIONS FOR ANTITRUST ENFORCEMENT

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Many valuable goods and services introduced in recent years are provided in the marketplace free of charge.[1] Some examples include Linux's operating system, Google's search engine, Facebook's or Twitter's social network, Wikipedia's online encyclopedia, YouTube's online video and music streaming services, Dropbox's online storage services, and Typepad's blogging platforms. Although the phenomenon of free consumer goods is not new, free goods and services (free goods) have gained particular prominence with the rise of the Internet.[2]

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[1] While our analysis applies in many instances to products and services that are sold at a price that is less than the variable cost of production, we will limit our discussion to those that are sold (or given away) at a zero price. Yet, as research has shown, one of the differences between these two categories often lies in the consumer's perception: in contrast to a low-priced offer which often devalues the product, a free offer often does not create such an effect and, at a minimum, devalues the product less than if it were offered for a low, discounted price. *See* Mauricio M. Palmeira & Joydeep Srivastava, *Free Offer ? Cheap Product: A Selective Accessibility Account on the Valuation of Free Offers*, 40 J. CONSUMER RES. 644, 647 (2013). Our definition also captures situations in which the consumer pays indirectly, for example, by providing information about his or her preferences. The consumer might not be aware of this payment or, if aware, not regard it as a payment. Markets involve the exchange of goods or services, regardless of whether the supplier is or is not motivated to maximize profits.

[2] *See, e.g.*, CHRIS ANDERSON, FREE: THE FUTURE OF A RADICAL PRICE (2009); Jonathan M. Barnett, *The Host's Dilemma: Strategic Forfeiture in Platform Markets for Informational Goods*, 124 HARV. L. REV. 1861 (2011); John M. Newman, *Copyright Freeconomics*, 66 VAND. L. REV.

Changes in modes of the production, distribution, and dissemination of information that have substantially reduced incremental costs have driven the provision of free goods. Such changes have encompassed not only commonly recognized developments, such as the digital distribution and digital dissemination of information, but also the introduction of new technologies, such as bio printing and 3D printing.[3]

Furthermore, the more that customer attention, personal information, and/or information-on-information become important intangible assets in the digital economy, the more common become exchanges in which information becomes a currency for what might otherwise be perceived as a free good.[4] The phenomenon of free goods is consistent with and perhaps even stimulated by the low weight given by many consumers to privacy and to the use of their revealed preferences by sellers.[5] These trends have allowed firms to use the increased demand created by free goods to provide profitable services such as targeted ads. Of particular note is the seemingly irrational effect of free goods on consumer choices, as lately confirmed by studies in behavioral economics.[6] Finally, free goods may create externalities: the more individuals are accustomed to free goods in one market, the more they expect to receive them in related markets.

Naturally, this abundance of free goods has brought to the forefront issues regarding their welfare effects and the appropriate regulatory and enforcement

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1409 (2013); Chris Anderson, *Free! Why $0.00 Is the Future of Business*, WIRED MAG. (Feb. 25, 2008), archive.wired.com/techbiz/it/magazine/16-03/ff_free (arguing that free pricing is an inevitable and a normatively acceptable approach to pricing Internet services in a digital world, due to the abundance of resources, which enables firms to leverage this abundance and give services away while profiting from other services that remain scarce, as well as due to the efficiencies in the provision of digital services. The "near-zero" marginal cost associated with digital distribution makes it possible to share services with a large number of individuals with only negligible increases in cost.)

[3] *See* Mark Lemley, *IP in a World Without Scarcity*, 90 N.Y.U. L. REV. 460, 472–80 (2015) (describing the new technologies' ability to "eliminate the need for distribution, and put manufacturing in the hands of the masses").

[4] *See, e.g.*, David S. Evans, *Attention Rivalry Among Online Platforms*, 9 J. COMPETITION L. & ECON. 313 (2013) (describing the rise of online businesses that provide products and features to obtain consumers' attention, and in turn sell that attention to merchants, developers, and other parties); Howard A. Shelanski, *Information, Innovation, and Competition Policy for the Internet*, 161 U. PA. L. REV. 1663, 1678 (2013) (describing customer information as a "critical asset" to businesses); PRELIMINARY OPINION OF THE EUROPEAN DATA PROTECTION SUPERVISOR, PRIVACY AND COMPETITIVENESS IN THE AGE OF BIG DATA (2014); Maurice E. Stucke & Ariel Ezrachi, *When Competition Fails to Optimize Quality: A Look at Search Engines* (Univ. of Tenn. Legal Studies, Paper No. 268, 2015), papers.ssrn.com/sol3/papers.cfm?abstract_id=2598128.

[5] *See, e.g.*, Daniel O'Brien & Doug Smith, *Privacy in Online Markets: A Welfare Analysis of Demand Rotations* (FTC Bureau of Econ., Paper No. 323, 2014), www.ftc.gov/reports/privacy-online-markets-welfare-analysis-demand-rotations; David S. Evans, *The Online Advertising Industry: Economics, Evolution, and Privacy*, J. ECON. PERSP., Summer 2009, at 37, 37.

[6] *See* discussion *infra* Part 1.A.2.

tools. Cases such as the Microsoft/Skype merger and *Kinderstart v. Google*, analyzed below, mandate enforcement agencies to closely examine the effectiveness of existing tools to deal with the special issues raised by free goods.

Free goods often provide real benefits to consumers and are clearly procompetitive. However, this is not always so. Under some circumstances the provision of free goods raises complex questions with regard to their overall welfare effects. Despite the fact that the consumer does not pay a direct price, there are indirect prices that reflect the opportunity cost associated with the consumption of free goods. These indirect prices can be overt or covert, in the same market in which the product is distributed, or in related markets, monetary or non-monetary, and short-term or long-term. Free goods are regularly supplied as complements to other goods; the complements may be intertemporal (free now, pay later), other goods in markets that are not directly related (as in search and advertising), other goods in related markets (as with most bundling), or non-economic goods such as political influence. The obvious effect of the provision of most free goods is to lower the ability of at least some firms to provide competing goods. Yet this, in itself, is not a reason to limit the provision of free goods, which may increase social welfare. The provision of free goods, however, might affect dimensions of competition other than price in ways that can affect welfare negatively.

The short-term provision of free goods by a monopolist that engages in predatory pricing can have negative effects if the price is raised and initial losses are recouped once the threat of entry or expansion is lifted.[7] In this article we seek to explore and to raise questions about the more difficult cases—those in which the free product is expected to *always* be provided for free.

Most of the recent economic literature on free goods has focused on two-sided markets in which the free good is provided in exchange for attention or information.[8] We analyze the welfare effects of additional cases that are becoming commonplace in our economy. These include a strategy of offering two versions of the same product, the simple version for free and the more developed version for profit ("freemium"), or providing a product for free to create a large consumer base that could then be sold, for profit, to other firms. We also explore cases in which free goods are offered even though their provision is not profit maximizing in any cognizable antitrust market. Free and Open Source Software (FOSS) such as Linux and Firefox and free goods that

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[7] For the classic article, see Phillip E. Areeda & Donald F. Turner, *Predatory Pricing and Related Practices Under Section 2 of the Sherman Act*, 88 HARV. L. REV. 697 (1975).

[8] *See, e.g.*, Evans, *supra* note 4; John M. Newman, *Antitrust in Zero-Priced Markets*, 164 U. PA. L. REV. 149 (2015).

are provided for philanthropic reasons (such as Wikipedia) serve as good examples.

This welfare analysis serves as a basis for the exploration of the antitrust implications of the provision of free goods, which has been relatively neglected.[9] Indeed, as this article shows, free goods raise significant issues for antitrust enforcement, which run the gamut from market definition to market power and to the evaluation of the competitive effects of mergers and more generally to strategic business behavior. In outlining the substantial analytical antitrust issues that are raised when goods and services are offered for free,[10] we emphasize the recognized need to analyze products or services that are companions to those that are offered for free and we suggest new areas for exploration.[11] Our analysis suggests the limitations of existing antitrust tools in dealing with some types of free goods and the need to broaden the scope or employ other regulatory tools when antitrust has reached its limits. While we point to a number of difficult issues facing antitrust enforcement in a world with free goods, we are confident that antitrust enforcement can adapt and maintain its relevance and its significance. We reject the position expressed by some courts and scholars that free goods should not come under antitrust scrutiny.

Analytical questions of this type are best evaluated through the lens of specific problems and cases. We use three main case studies in this article. First, we explain how the offer of a forever free browser by Microsoft was a means of increasing the barrier to entry in the market for PC-based operating systems

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[9] For studies that focused on a specific kind of good, see, for example, Barnett, *supra* note 2; Brian W. Carver, *Share and Share Alike: Understanding and Enforcing Open Source and Free Software Licenses*, 20 BERKELEY TECH. L.J. 443 (2005); Michal S. Gal, *Viral Open Source: Competition vs. Synergy*, 8 J. COMPETITION L. & ECON. 469 (2012); David McGowan, *Legal Implications of Open-Source Software*, 2001 U. ILL. L. REV. 241 (2001); Greg R. Vetter, *"Infectious" Open Source Software: Spreading Incentives or Promoting Resistance?*, 36 RUTGERS L.J. 53 (2004); Michal Tsur & Shay David, A License to Kill (Innovation)? Open Source Licenses and Their Implications for Innovation (Feb. 28, 2005) (unpublished manuscript), ssrn.com/abstract=858104 (all focusing on FOSS); Heidi S. Bond, Note, *What's So Great About Nothing? The GNU General Public License and the Zero-Price-Fixing Problem*, 104 MICH. L. REV. 547 (2005); *see also* Brendan O'Flaherty, *Need and Generosity: How Markets for Free Goods Equilibrate*, 54 J. URBAN ECON. 157 (2003) (analyzing philanthropic goods). For general studies of the effects of free goods on antitrust analysis see, for example, Evans, *supra* note 4; Fabio Polverino, *Hunting the Wild Geese: Competition Analysis in a World of "Free," in* CONCORRENZA E MERCATO: ANTITRUST, REGULATION, CONSUMER WELFARE, INTELLECTUAL PROPERTY 545 (Gustavo Ghidini et al. eds., 2012).

[10] This reality is reflected by David Evans, who notes that "[a] price of zero provides a red flag that the textbook models of competition and standard antitrust analysis do not apply to the product in question." David S. Evans, *The Antitrust Economics of Free*, COMPETITION POL'Y INT'L, Spring 2011, at 71, 81.

[11] *Id.*; *see also* James D. Ratliff & Daniel L. Rubinfeld, *Is There a Market for Organic Search Engine Results and Can Their Manipulation Give Rise to Antitrust Liability?*, 10 J. COMPETITION L. & ECON. 517 (2014).

by cross subsidization and was arguably a means of anti-Netscape predation. Second, we explore the antitrust implications of free goods in a two-sided market through the examination of the free Google search engine. Third, we analyze the potential welfare-reducing non-monetary effects of free newspapers.

I. MOTIVATIONS AND WELFARE EFFECTS OF FREE GOODS

It is useful to start the analysis with a review of the literature on the motivations for zero pricing of goods and services and with an analysis of the welfare effects of free goods.

A. MOTIVATIONS FOR THE SUPPLY OF FREE GOODS

1. *Traditional Analysis*

Firms offer free goods for a variety of economic reasons.[12] The offer of free goods might be a means of increasing revenues in product or services markets. For example, free experience goods may be an effective means of growing demand for a product whose value is only appreciated after it has been consumed or the reputation of its producer is increased.[13] A modern variant in software or digitally distributed content markets is to offer a basic product for free and charge for its premium versions or added features. "Freemium" examples include LinkedIn Business, Adobe, and Spotify.[14] Furthermore, zero pricing may be motivated by the goal of increasing revenues in markets for complementary products that operate in more lucrative consumable or services markets (e.g., free razors with razor blade revenue or free cell phones with service-based revenue).[15] Finally, free products are often used in multi-

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[12] *See generally* John M. Gallaugher & Yu-Ming Wang, *Network Externalities and the Provision of Composite IT Goods Supporting the E-Commerce Infrastructure*, 9 ELEC. MKTS. 14 (1999); Kang Bae Lee et al., *Analysis of Pricing Strategies for E-Business Companies Providing Information Goods and Services*, 51 COMPUTERS & INDUS. ENG'G 72 (2006); Romuald E.J. Rudzki & Shaomei Li, *The Economic Paradox of the "Freebies" Phenomena: How and Why Companies Give Stuff Away for Free*, 1 DIRECT MKTG. 180 (2007).

[13] Phillip Nelson, *Information and Consumer Behavior*, 78 J. POL. ECON. 311 (1970); J. Miguel Villas-Boas, *Dynamic Competition with Experience Goods*, 15 J. ECON. & MGMT. STRATEGY 37 (2006).

[14] This "freemium" strategy can be exemplified by the marketing strategy of Adobe. The basic Adobe reader is distributed for free, thereby increasing the demand for software that writes Adobe files. The enhanced versions of the Adobe software (that allow readers, for example, to highlight or comment on certain passages), is not free. Similarly, Google enables users to view parts of books, but charges for viewing additional parts that were not presented.

[15] *See, e.g.*, ROY G.D. ALLEN, MATHEMATICAL ANALYSIS FOR ECONOMISTS (Brunton Press 2008) (1938); Barnett, *supra* note 2; Evans, *supra* note 4; Polverino, *supra* note 9. Some zero-price complementary goods might be explained by the theory of two-part tariffs, which are based on a fixed access charge for the good and a variable charge for consumables, based on their use. *See* JEAN TIROLE, THE THEORY OF INDUSTRIAL ORGANIZATION 143–49 (1988). Others might be explained by multi-sided markets which serve two or more distinct groups of consumers that

sided platform markets which take advantage of cross-network effects (e.g., free newspapers which increase attention to ads, free Internet search services in return for personal information).[16] Of course, a business strategy may combine several of these motivations.

Although free goods are not a new phenomenon, they are common today, especially in digital markets. This may be partially explained by the fact that the marginal cost of supply of digital products and services is often extremely low. (The cost of offering an additional consumer the option of downloading the product and using it is very small.[17]) Moreover, it often does not cost much to disseminate information digitally, thereby further reducing transaction costs. Accordingly, the supplier can afford to convert only a small fraction of consumers to paying customers (e.g., in upgraded versions) and still be profitable.[18] As Mark Lemley has pointed out, advances in 3D printing, bio printing, and robotics may also add to the economy of free goods.[19]

Free goods might also be used as part of predatory or exclusionary strategies. Danny Ben-Shahar and Assaf Jacob offer an interesting example, in which the owner of a copyright enforces his right in a selective manner, implying that some users can use it for free.[20] The underlying strategy is to deter potential competitors from entering the market by lowering prices (to zero) for those consumers characterized by a relatively high elasticity of demand for the incumbent's products, even at the cost of immediate profit loss. This strat-

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contribute to total revenue. *See, e.g.*, David S. Evans & Richard Schmalensee, *Markets with Two-Sided Platforms*, *in* 1 ABA SECTION OF ANTITRUST LAW, ISSUES IN COMPETITION LAW & POLICY 667 (W. Dale Collins ed., 2008); E. Glen Weyl, *A Price Theory of Multi-Sided Platforms*, 100 AM. ECON. REV. 1642 (2010); Evans, *supra* note 10, at 75 ("[T]he complementary product for members of one group of consumers is the members of the other group of consumers. If the elasticities of demand and cross-dependencies between the demands of each group line up properly, it is possible that the profit-maximizing price for one of the products is zero.") Examples involve charge cards (charging a transaction fee from merchants), free Internet searches (charging advertisers), restaurant reservations sites (charging participating restaurants).

[16] *See, e.g.*, David S. Evans & Richard Schmalensee, *The Industrial Organization of Markets with Two-Sided Platforms*, COMPETITION POL'Y INT'L, Spring 2007, at 151 (2007); Jean-Charles Rochet & Jean Tirole, *Two-Sided Markets: A Progress Report*, 37 RAND J. ECON. 645 (2006); Marc Rysman, *The Economics of Two-Sided Markets*, J. ECON. PERSP., Summer 2009, at 125.

[17] *See, e.g.*, Richard A. Posner, *Antitrust in the New Economy*, 68 ANTITRUST L.J. 925, 926–27 (2001) ("Intellectual property is characterized by heavy fixed costs relative to marginal costs . . . dramatically so in the case of software, where it is only a slight overstatement to speak of marginal cost as zero.").

[18] CHRIS ANDERSON, THE LONG TAIL: WHY THE FUTURE OF BUSINESS IS SELLING LESS OF MORE 223 (2008); *see also* Hal R. Varian, *Versioning Information Goods*, *in* INTERNET PUBLISHING AND BEYOND: THE ECONOMICS OF DIGITAL INFORMATION AND INTELLECTUAL PROPERTY 190 (Hal R. Varian & Brian Kahin eds., 2000).

[19] *See, e.g.*, Lemley, *supra* note 3.

[20] Danny Ben-Shahar & Assaf Jacob, *Selective Enforcement of Copyright as an Optimal Monopolistic Behavior*, 3 CONTRIBUTIONS TO ECON. ANALYSIS & POL'Y 1 (2004).

egy, which may allow for almost immediate recoupment, is especially profitable in markets with strong network effects that can lead to market tipping.

Finally, the "price" of the good that is offered for free is often seen in nonmonetary forms, such as information that is revealed about consumer preferences.[21] The more significant the network effects of such gathered information, the higher the value to the information aggregator. Google serves as an example: data on consumer preferences gained through the provision of free search services serve as inputs in the market for information on consumer preferences. The increase in the value of these data is directly correlated to the advantage Google gains from combining this information with other sources of information. This allows Google to achieve a comparative advantage in the market for information-on-information. Such marketing and expansion strategies have long been acknowledged and analyzed,[22] although their antitrust implications are only beginning to be studied in depth.

All of the strategies just discussed are driven by a monetary profit-maximization motive. But a growing number of goods are provided free of charge based on motivations that are intrinsic and not purely economic. One example is Free and Open Source Software, such as Linux, MySQL, and Apache, which are often the product of social networks in which software developers collaborate voluntarily.[23] Motivations of contributors to open-source software are diverse, including social interactions via cooperative creative activity, the creation of better software for self-use, gifting, creating an alternative to an existing monopoly, and reputational development.[24]

Another motivation is philanthropic, both individually motivated and public-regarding. Food and shelter are common examples, as is the provision of free day care services or cultural events. Digital examples include Wikipedia

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[21] *See, e.g.*, Chris Jay Hoofnagle & Jan Whittington, *Free: Accounting for the Costs of the Internet's Most Popular Price*, 61 UCLA L. REV. 606, 608 (2014) ("[E]xchanges [involving free products] often carry a hidden charge: the forfeit of one's personal information.").

[22] *See, e.g.*, Evans, *supra* note 10.

[23] *See, e.g.*, YOCHAI BENKLER, THE WEALTH OF NETWORKS: HOW SOCIAL PRODUCTION TRANSFORMS MARKETS AND FREEDOM (2006); Carver, *supra* note 9; Niva Elkin-Koren, *What Contracts Can't Do: The Limits of Private Ordering in Facilitating a Creative Commons*, 74 FORDHAM L. REV. 375 (2005).

[24] *See, e.g.*, Chaim Fershtman & Neil Gandall, *Open Source Software: Motivation and Restrictive Licensing*, 4 INT'L ECON. & ECON. POL'Y 209 (2007); Il-Horn Hann et al., *All Are Not Equal: An Examination of the Economic Returns to Different Forms of Participation in Open Source Software Communities*, 24 INFO. SYS. RES. 520 (2013); Alexander Hars & Shaosong Ou, *Working for Free? Motivations of Participating in Open Source Projects*, 6 INT'L J. ELEC. COMMERCE 25 (2002); Karim R. Lakhani & Robert G. Wolf, *Why Hackers Do What They Do: Understanding Motivation and Effort in Free/Open Source Software Projects*, *in* PERSPECTIVES ON FREE AND OPEN SOURCE SOFTWARE 3 (Josef Feller et al. eds., 2003); Josh Lerner & Jean Tirole, *Some Simple Economics of Open Source*, 50 J. INDUS. ECON. 197 (2002).

and FOSS.[25] The provision of free goods might alternatively be driven by motives such as public recognition, influence, or political power. Control of the written or broadcast media is an obvious example. Providing free goods might also be based on psychological motivations, such as remorse. For example, a tomato grower who sold contaminated tomatoes all his life might decide, in his later years, to distribute organic tomatoes for free. Alternatively, it might be based on such a deep rivalry between producers that one will do everything to keep his rival out of his market.

It is sometimes important to distinguish between non-monetary free goods for which the consumer pays in another "currency," such as privacy, media diversity, etc. ("pseudo free goods"), and those for which the consumer does not pay at all, at least not in the short run ("real free goods"). Our primary emphasis will be on this latter case, which poses the biggest challenge to the intuitively appealing view that free goods increase welfare.

2. *The New Learning: The "Free Effect"*

The zero price point has become more and more ubiquitous for another reason. Suppliers of the free good may be taking into account an important effect newly acknowledged by behavioral economics. While the allure of free is intuitive, recent studies have shown that a free good can have a much stronger lure than its actual value.[26] Zero often serves as a focal point, signaling to consumers that the product or service has a substantially higher benefit than if the same product or service was made available at a very low but positive price. This effect has been found to be so important that it is often called the "zero price effect" or the "free effect." Several major studies have confirmed the existence of such an effect.

Kristina Shampanier, Nina Mazar, and Dan Ariely conducted experiments on the psychology of free prices. They found that when faced with a zero price, dramatically more participants chose the cheaper zero-price option, despite the fact that they gave up an alternative that better served their otherwise revealed preferences. Accordingly, individuals appear to act as if zero pricing of a good not only decreases its cost but also adds to its value.[27] The experi-

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[25] Studies include Barnett, *supra* note 2; Bond, *supra* note 9; Carver, *supra* note 9; Gal, *supra* note 9; McGowan, *supra* note 9; O'Flaherty, *supra* note 9; Tsur & David, *supra* note 9; Vetter, *supra* note 9 (all focusing on open source software).

[26] In formal terms, there is an increase in the proportion of consumers choosing the free product Y and a decrease in the proportion of consumers choosing product X, when the prices of the products go from $[P_Y,P_X]$ to $[0, P_X–P_Y]$. Of course, this is not always true. In some situations a zero price might have an opposite signaling effect, at least for some consumers, that the product is of low value or that the consumer will be required to pay in another currency (e.g., personal data).

[27] Kristina Shampanier et al., *Zero as a Special Price: The True Value of Free Products*, 26 MKTG. SCI. 742 (2007). The authors attribute this behavioral response to "affect," suggesting that

ments were based on consumer choices when faced with different quality chocolates (Hershey's and Lindt), and under different price menus, some of which involved a zero price for the lower quality good. The authors found that a price of zero is more powerful than a five times larger price reduction that remains within the range of positive prices.[28] Furthermore, they demonstrated that the zero-price effect is not driven solely by a difference in transaction costs.[29] These findings were confirmed in later studies.[30] Sarah Dengler,[31] for example, also found that a free product is so extraordinarily attractive that another, much preferred, alternative is forgone.

Other studies confirm that the results hold even when the free good is part of a costly product bundle. Uriel Spiegel, Uri Benzion, and Tal Shavit[32] experimented with combinations of products with the same final price. These were offered in different marketing forms, including "buy one, get one free" and a 50 percent discount on both products. The experiment showed that consumers usually preferred getting one product for free over getting a 50 percent discount on each of two products, thereby confirming the free effect in a multiproduct setting: Consumers overvalued the free products, even when the net price was the same as under the 50 percent discount offer.

The free effect was also found to exist with regard to complementary goods. In a study of the tourism industry by Juan Nicolau and Ricardo Sellers,[33] the authors studied preferences for high value and for low value hotels. When the low value hotel offered a free breakfast, the demand for the low value hotel increased, beyond the market value of the breakfast.[34] In contrast, Spiegel et al. found that the free effect disappeared when the products were

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zero price options having no downside invoke a more positive "affective" response that would otherwise be expected. *Id.* at 751; *see also* DAN ARIELY, PREDICTABLY IRRATIONAL, REVISED AND EXPANDED EDITION: THE HIDDEN FORCES THAT SHAPE OUR DECISIONS 49–63 (2008).

[28] Shampanier et al., *supra* note 27, at 747.

[29] *Id.* at 749.

[30] *See, e.g.*, Juan L. Nicolau & Ricardo Sellers, *The Free Breakfast Effect: An Experimental Approach to the Zero Price Model in Tourism*, 51 J. TRAVEL RES. 243 (2012); Sarah Dengler, *Freebie Frenzy: Experimental Evidence of the Zero Price Effect* (Univ. of Mary Washington Working Paper, 2013), www.sarahdengler.com/wp-content/uploads/Draft-4-FINAL.pdf; Francisco Guilherme de Sousa Pereira Saraiva, *Free Products and Their Impact on Consumer Behavior* (2011) (unpublished M.A. dissertation, Porto University), repositorio-aberto.up.pt/bitstream/10216/61112/2/DissertacaoFranciscoSaraiva2011Free%20Products%20and%20Their%20Impact%20on%20Consumer%20Behavior.pdf.

[31] Dengler, *supra* note 30.

[32] Uriel Spiegel et al., *Free Product as a Complement or Substitute for a Purchased Product—Does It Matter?*, 2 MODERN ECON. 124 (2011).

[33] Nicolau & Sellers, *supra* note 30.

[34] *Id.* at 247; *see also* Juan L. Nicolau, *Battle Royal: Zero-Price Effect vs Relative vs Referent Thinking*, 23 MKTG. LETTERS 661 (2012).

perfect complements, since consumers treated them as an inseparable package.[35]

The existence of a free effect was also confirmed in an interesting natural experiment. When Amazon introduced free shipping in some European countries, the price in France was mistakenly reduced not to zero, but to a negligible positive price (about 10¢). Whereas the number of orders increased dramatically in the countries with free shipping, there was not much change in France.[36]

Several explanations have been proposed for this free effect. Shampanier et al. found strong evidence that free evokes a positive affect and that this affect impacts decision making.[37] Dengler agrees, suggesting that when faced with "free," consumers are affective rather than rational decision makers, perhaps due to an emotional response or to a cognitive bias. In her words: "There is just something irresistible about 'getting something for nothing' or feeling like we got a great bargain."[38] In addition, the decision to choose a free product is a much simpler decision, and that simplicity could be the driver of higher demand.[39]

All of these studies were performed on relatively inexpensive goods, with no apparent cost to the consumer (such as harm to privacy), and many were performed on students.[40] It is still unclear how much the free effect would change consumer decisions with regard to costlier goods or would affect other groups in society, including corporate entities.[41] Yet these studies make clear that free is not simply one point on the continuum of low cost alternatives. Discounts to zero may have a much larger effect on demand than they save the consumer in actual monetary terms and cannot be explained by a classic analysis of rational consumer behavior.

One plausible conclusion is that free goods have "nudge" qualities which help push consumers to make choices they otherwise might not have made,

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[35] Spiegel et al., *supra* note 32.

[36] Shampanier et al., *supra* note 27, at 756.

[37] *Id.* at 751–54; *see also* Melissa L. Finucane et al., *The Affect Heuristic in Judgments of Risks and Benefits*, 13 J. BEHAV. DECISION MAKING 1 (2000) (for the "affect").

[38] Dengler, *supra* note 30, at 11.

[39] Shampanier et al., *supra* note 27, at 753. This simplicity arises, *inter alia*, from the fact that the consumers need not assess the exact value of the free product. Additional yet untested explanations of free include signaling to oneself and to others, being endowed with what is perceived as a gift, and loss aversion.

[40] Shampanier et al. conducted a survey based on hypothetical options, which found that the effect of zero is not limited to small prices and meaningless decisions. *Id.* at 754–55.

[41] *See id.* (reporting that their hypothetical experiment involving more expensive goods had a similar result).

resembling those suggested by Richard Thaler and Cass Sunstein.[42] Yet, while Thaler and Sunstein suggest the use of nudge strategies to design policies to change the conduct of consumers who behave irrationally and so are not advancing their own interest, in market settings "nudge" can be used to change the conduct of consumers to prefer a product which does not advance their otherwise revealed preferences. This result is further strengthened by findings that, once accustomed to a free good, consumer willingness to pay for the product is significantly reduced, often below the product's value.[43]

B. EFFECT OF FREE GOODS ON COMPETITION AND WELFARE

Free goods pose a special challenge. While free goods create obvious benefits to consumers, they have the potential to create negative effects on both competition and welfare.[44]

As a starting point, it is helpful to recognize that some of the most basic market-related assumptions made in economic models do not hold when a free good is provided. One such assumption is that the price of a good covers (or more than covers) its costs of production, at least in the long run.[45] Even if we broaden our analysis to include related markets, some free goods will never cover their costs of production (e.g., philanthropic goods). A second assumption is that consumer demand generally will be positively related to the relative qualities of the goods provided in the market. However, when a free good is provided, the price of zero does not signify the product's stand-alone comparative advantage. Furthermore, as elaborated above, the free effect creates a gap between consumer demand and the product's relative qualities. A third example involves changes in output levels. It is generally assumed that when output is increased, price is reduced. This is not necessarily the case, however, with free goods that are associated with one side of a two-sided market that is characterized by network effects.

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[42] RICHARD H. THALER & CASS R. SUNSTEIN, NUDGE: IMPROVING DECISIONS ABOUT HEALTH, WEALTH, AND HAPPINESS (2008).

[43] Evans, *supra* note 4, at 332 (firms that offered their products for free and tried to charge a low price lost a significant proportion of their customers).

[44] It should be emphasized that this article focuses on economic effects and disregards psychological effects, such as strengthening the self-respect of the provider and strengthening the motivation of others to give. *See, e.g.*, Yochai Benkler, *Coase's Penguin, or Linux and "The Nature of the Firm,"* 112 YALE L.J. 369 (2002). Or, in some cases, it could harm the self-respect of the receiver of the free good.

[45] The effect on the free good market might resemble a reverse Cellophane fallacy. The Cellophane fallacy arises when one concludes incorrectly that a firm has little or no market power simply because there are many substitutes at the monopoly price. United States v. E.I. du Pont de Nemours & Co., 351 U.S. 377 (1956). For the reverse Cellophane fallacy, see Debra J. Aron & David E. Burnstein, *Regulatory Policy and the Reverse Cellophane Fallacy*, 6 J. COMPETITION L. & ECON. 973 (2008) (writing about below-cost regulated prices); *see also* Polverino, *supra* note 9.

It is worth emphasizing that the possibility that free goods might reduce welfare does not necessarily lead to the conclusion that antitrust enforcement or public regulation is justified. To prevent possible confusion, we have separated the discussion of the theoretical effects of free goods on welfare, which immediately follows, from an analysis of the possible antitrust enforcement issues that they raise, which is covered in Part III.

1. *Potential Positive Effects of Free Goods*

Free goods generate a surplus to consumers when the good is provided without any explicit payment (e.g., free organic tomatoes), or where the compensation to the producer is not regarded as a price by the consumer (e.g., increasing consumer exposure to the basic version of a software product so those interested would buy an upgraded version). Some free goods enlarge usage and can also strengthen consumer benefits from network effects. In platform markets, for example, a free good might, under some circumstances, increase user utility by maximizing cross-network effects.[46] A common example involves a night club which operates as a platform to connect two groups. If one group has a high elasticity of demand relative to the other, it might be optimal to allow the elastic group to enter for free and to increase the price charged from the other group. This might achieve the desired allocation, thereby increasing the utility of both groups from the exchange.[47]

Furthermore, free goods may create procompetitive effects by encouraging firms to compete on quality as well as price.[48] Alternatively, the provision of free goods might be used by newcomers to overcome high entry barriers into markets.[49] This is especially important in markets in which network effects are significant and consumer switching costs are high.

Moreover, some individuals may wish to contribute to the provision of free goods, which might, in turn, increase quality. Free and open source software (FOSS) serves as a good example. In social network projects, developers are

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[46] Rochet & Tirole, *supra* note 16; Raphael Fleischer & David A. Smith, *Two-sided Markets in the EU: An Attempted Demystification* (Univ. of Chi. Working Paper, 2012) (on file with authors).

[47] This is a special case of a two-part tariff. For an overview, see ROBERT S. PINDYCK & DANIEL L. RUBINFELD, MICROECONOMICS ch. 11.4 (8th ed. 2012).

[48] *See, e.g.*, Gal, *supra* note 9, at 505; Stucke & Ezrachi, *supra* note 4, at 2 (also arguing that in two-sided markets firms might instead have incentives to lower the quality of the free good if this will increase their profits in the other side of the market. The authors identify several conditions that strengthen the probability of such effects, including network effects and consumers' ability and incentives to assess quality differences.).

[49] An interesting example involves the donation of free Apple II computers to schools by Apple Co. in the 1980s. *See* Audrey Watters, *How Steve Jobs Brought the Apple II to the Classroom*, HACK EDU (Feb. 25, 2015), hackeducation.com/2015/02/25/kids-cant-wait-apple/.

motivated in part by the fact that the project is not profit-driven.[50] The free provision of the software can also motivate contributions to its creation in another way: as the number of users grows, so does the motivation of developers to take part in FOSS creation: it boosts the motivation of those who aim to create a world in which all source code is free and open; it strengthens those motivated by their own use of the FOSS, by increasing its value to them if the software creates network effects; and it motivates purely innovation-related developers as it creates a growing platform to which they can contribute. In the end, free provision of goods may allow for the introduction and use of goods that would otherwise not be supplied in the market.[51]

Relatedly, the provision of some free goods creates social effects on consumers that go well beyond the costs saved. Finally, the free provision of goods, enhanced by the free effect, enables firms to increase demand for their product, thereby reaching a larger number of consumers. This, in turn, enables them to learn more quickly about limitations or potentials of the product, to fix them more quickly, and potentially to achieve scale economies, or strengthen the product's network effects. It is reasonable, therefore, to take as a starting point the view that free is generally socially beneficial.[52]

2. *Possible Negative Welfare Effects of Free Goods*

Despite the fact that the consumer does not pay a direct price for a free good, the change in the price dimension affects other dimensions of competition in ways that can (under some conditions) harm social welfare. Such effects can be overt or covert, in the market in which the free product is distributed or in another market, economic or non-monetary, short-term or long-term. While some of these effects have been recognized, we seek to unveil additional ones, based in part on the newly recognized free effect. We start with the relatively easy and most recognized case—bundled goods.[53]

A basic condition which underlies the potential negative effects of all types of free goods is the potential creation or strengthening of significant market power by the free goods provider.[54] Yet market power is a necessary but not sufficient condition for there to be negative effects. Accordingly, if market power exists or is created, the analysis should turn to the effects of the free

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[50] *See, e.g.*, Hars & Ou, *supra* note 24; Lakhani & Wolf, *supra* note 24; Lerner & Tirole, *supra* note 24.

[51] Moreover, the free usage and uploading of many Internet resources creates a shared social space that affects and transforms some important social interactions.

[52] *See, e.g.*, Bond, *supra* note 9 (referring to the procompetitive benefits of FOSS).

[53] We do not deal with a potential claim that free leads to wasteful use by the consumer which, in turn, increases society's deadweight loss.

[54] How such market power is measured is a separate question, to be addressed in Part III below.

provision of a good on access to relevant markets by potential competitors and the overall effects of limitations on such access.

To begin, consider free goods which are bundled with other goods sold at positive prices.[55] It is commonly assumed that "the [long term] existence of a free good signals that there is a companion good, [and] that firms consider both products simultaneously in maximizing profit . . . ."[56] In such situations, free goods might have an exclusionary effect: it might be more difficult to enter the market where either good is sold without entering both markets, thereby creating a barrier to entry. To compete, a competitor would either need to be able to offer the same, complementary product for free, offer another related product for free, or increase the value of its primary product substantially beyond the value attached by the consumer to the free good. Should entry barriers into either market be high, some firms might not enter, even if they can supply a more efficient product than is currently supplied in it. These two-level entry effects are strengthened by the observed reluctance of consumers, at least in the short run, to pay for anything that they have previously received for free.[57] Furthermore, the more consumers are accustomed to receiving goods for free, the more they tend to expect to get other products of a similar kind (e.g., online services) for free and the higher the entry barriers into related markets.

The free effect increases this exclusionary effect beyond what has been recognized. This is exemplified by Nicolau and Seller's study of the tourism industry,[58] in which consumers valued a package with a free breakfast much above their valuation of a breakfast. Observe that the free effect implies that the bundling firm will have to invest less in the quality of the tying product to create a comparative advantage, thereby increasing the exclusionary effect and reducing the need to invest in quality.

None of this implies that such exclusionary effects reduce welfare. Indeed, the provision of free goods changes the dynamics of competition in the market; it creates a built-in advantage for the provider of the free good and removes nominal price as an effective instrument of competition. Yet one

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[55] Of course, bundling will only be profitable if it enables recoupment of losses in the paid product market. The welfare effects of such bundling practices have been raised by the decision of the Third Circuit about the competitive effects of bundled loyalty rebates in *LePage's Inc. v. 3M*, 324 F. 3d 141 (3d Cir. 2003). For an economic analysis, see, e.g., Daniel L. Rubinfeld, *3M's Bundled Rebates: An Economic Perspective*, 72 U. CHI. L. REV. 243 (2005); J. Shahar Dilbary, *Predatory Bundling and the Exclusionary Standard*, 67 WASH. & LEE L. REV. 1231 (2010).

[56] Evans, *supra* note 10, at 71.

[57] A study performed on micro-blogs such as Twitter indicated that 0% of users said that they would be willing to pay for its services. CTR. FOR THE DIGITAL FUTURE, THE DIGITAL FUTURE PROJECT 2010: SURVEYING THE DIGITAL FUTURE YEAR NINE 89 (2010), www.digitalcenter.org/wp-content/uploads/2012/12/2010_digital_future_report-year9.pdf.

[58] Nicolau & Sellers, *supra* note 30.

should not necessarily conclude that welfare is harmed. Competition is a means to an end (welfare), and once that end is met in a more efficient way, the justifications for protecting competition fail. Accordingly, further analysis is needed to determine whether the benefits received by consumers, including those stemming from network and cross-network effects, are outweighed by harm in the long run as a result of reduced competition.

Another difficult question arises with regard to the welfare effects of profit-making freestanding (i.e., unbundled) free goods. The provision of such goods is based on a wider strategy of interconnection: in the first stage goods are provided for free at a loss to the provider, which will be more than made up in the second stage.

In two-sided markets, profits are earned from two different groups of consumers, and demand by one group affects demand by the other. Newspapers offer an instructive example: here profits can accrue from both readers and advertisers—the more individuals there are who read the newspaper, the more advertisers would be willing to invest in buying ads. The free effect enables the supplier to increase demand on one side of the market, thereby increasing profits from the other side of the market. Facebook exemplifies this point: its service is provided to the consumer free of monetary charge,[59] but it sells targeted ads based on the revealed preferences of consumers at prices which potentially cover its costs of providing free Internet services. This, in turn, makes entry into either market more difficult.[60] Significant scale economies and network effects (single or multiproduct) increase entry barriers.

Freestanding profit-making free goods might alternatively be based on a two-stage strategy. A common example is free commercial software: in the first stage consumers get to know the product, thereby potentially increasing not only the consumer base but also the product's reputation and its network effects, and in the second stage some consumers buy upgrades, premium versions, or other products and services of the firm, at prices that enable the firm to profit. The free provision of products also enables firms to better study the patterns of demand for their product and to test new products in the market more easily, thereby potentially increasing efficiency. Adobe is a successful software firm that operates based on such a strategy.

Alternatively, profits in the second stage can be based on the price paid by another firm for buying the firm's property rights in the product. The free provision of goods in the first stage enables firms to prove to potential buyers

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[59] Consumers pay in revealed preferences, in limitations to privacy, and in their willingness to accept targeted ads.

[60] *See, e.g.*, Gallaugher & Wang, *supra* note 12 (analyzing the two-level entry problem in the Web server market).

the benefits and potential demand for their products. The recent buyout of Waze serves as an excellent example. Waze is a social-network-powered navigation system which uses information from its users to identify road congestions in real-time. Its services are currently provided for free. After several years of trial, Waze began to offer ads and coupons to services along the routes traveled, for which it charged ad providers. Yet Waze's primary real profit came from its recent acquisition by Google, which wanted to improve its online navigation systems.[61] It is noteworthy that under a two-stage strategy, the consumer might incur sunk costs (e.g., the costs of learning to use new software), which might create lock-in effects.

What are the welfare effects of the provision of freestanding profit-making free goods? As with all other free goods, the answer depends on the short and long run benefits created net of any exclusionary or efficiency-reducing effects. Freestanding free goods might create exclusionary effects that are quite similar to those of bundled free goods: the creation of 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. Alternatively, they might create a temporal entry barrier, until the competitor company is bought by another that might start charging for the good.

Yet the unique nature of free goods requires a careful analysis before reaching a conclusion that welfare was harmed. For example, the maturity of the market for the free good should affect the analysis: creating a new market by increasing the exposure of consumers to goods not used before is not similar to gaining control over an existing market. Furthermore, to be profitable, the strategy should also create entry barriers into the high quality segment of the market (e.g., reputational effects where the market is characterized by high degrees of asymmetric information). Otherwise, a competitor might enter only the high quality segment, thereby reducing its costs relative to the firm which must also recoup its losses on the free product.[62]

When evaluating the effects of free goods, all affected markets must be analyzed. Yet it is reasonable to ask whether we should take into account, when evaluating the conduct of the free goods provider, its potential exclusionary effects in the future if the assets were to be acquired by another firm. We think not. As a case in point, consider the recent acquisition of Viber, the world's largest voice-over-IP provider, which provides some of its services for free. Viber was recently purchased by a Chinese manufacturer to access

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[61] *See, e.g.*, Peter Cohan, *Four Reasons Why Google Bought Waze*, FORBES (June 11, 2013), www.forbes.com/sites/petercohan/2013/06/11/four-reasons-for-google-to-buy-waze.

[62] For similar logic, see Randal C. Picker, *The Razors-and-Blades Myth(s)*, 78 U. CHI. L. REV. 225 (2011).

Viber's database of over 40 million subscribers.[63] Viber continues to provide services free of charge. While there may ultimately be exclusionary effects, it is unlikely that these effects will be clearly observed at the first stage. We also suggest that any benefits that the consumer gained from the free good and which do not result from the acquisition, are not merger specific and consequently should not be included in the merger analysis itself.

In the case of free goods for which the price paid by the consumer is non-monetary, the potential for negative effects on consumer welfare remains significant.[64] Take, for example, a free good which creates value for its providers in the form of the information gathered about consumer characteristics and conduct (e.g., diseases from which they suffer, substance abuse). This information might reduce the welfare of at least some consumers beyond the benefits accrued to them from the use of the free good. Accordingly, to the extent that the effects of such non-monetary prices on welfare can be observed and calculated, they should also be included in the analysis.[65]

Free goods are sometimes provided under the terms of settlements to compensate victims of past competitive (or other) harms. But free goods in this context can also generate negative effects. For example, the provision of free coupons as part of the settlement of antitrust price-fixing litigation may serve as a sorting mechanism for those claims that are valid and those that are not, but they also have the potential to be anticompetitive by sustaining the market power of firms that have already violated the antitrust laws.[66]

Finally, the most challenging and least explored case of potential negative welfare effects involves real free goods: free-standing goods that are provided with no price tag attached in any market. Here, the supplier receives a benefit in the form of perceived positive effects on others (e.g., providing shelter, exposing youngsters to music). The analysis requires an evaluation of questions such as whether we actually need a level playing field to increase social welfare, and if so, under which conditions. The common intuition is that such goods can do no harm to welfare. Yet, as we argue below, even real free goods can negatively affect welfare.

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[63] Such an acquisition can raise privacy issues, but this is beyond the scope of this article.

[64] The strength of the link between the free good and the non-monetary price may vary. For example, the provision of a free good to create general goodwill towards a company might create a weaker link—from the point of view of the consumer—than the provision of free media outlets that promote a political party. In cases where the link is extremely weak, we might move to the next category of cases, elaborated below.

[65] The question of who is best placed to evaluate the level of these costs to society is a separate issue, partly dealt with in the next section.

[66] A. Mitchell Polinsky & Daniel L. Rubinfeld, *A Damage-Revelation Rationale for Coupon Remedies*, 23 J.L. ECON. & ORGS. 653 (2007); A. Mitchell Polinsky & Daniel L. Rubinfeld, THE DEADWEIGHT LOSS OF COUPON REMEDIES FOR PRICE OVERCHARGES, 56 J. INDUS. ECON. 402 (2008).

Goods that are truly free obviously save consumers resources. Furthermore, because the provision of free goods typically involves uncompensated costs, consumers may obtain products or services that otherwise would not be introduced into the market or that the consumer would not consume (e.g., free music lessons for young children), thereby further increasing welfare.[67] Like pseudo free goods, real free goods may create procompetitive benefits: if one cannot compete over price, one might compete over quality.

We identify two situations in which real free goods can harm welfare. One involves a good that will not always be provided for free (e.g., funds run out). If the free provision of the product has led to the exit of all other competitors from the market and barriers to reentry are high, the product might not be supplied for some time. While firms exit the market as part of natural competition, a firm offering a real free good has a stronger potential to be the only firm remaining in the market, and—because it has no revenue—possibly a stronger potential as well to suddenly exit the market. Yet its exit would be similar in its effects, for example, to the exit of a profit-making monopolist whose assets were destroyed by fire. While such exit might harm consumers, its potential is not typically considered to be a competitive problem (separate from the question of the exercise of monopoly power). Therefore, unless we have reason to believe that the continued provision of the (free) product is of great importance to consumers, there is no good competitive case for ensuring that the consumer has alternatives or that the producer does not exit the market abruptly.[68]

Another situation in which the provision of a real free good might cause harm is if it negatively affects the quality of the product or its production. On the one hand, the provision of a free good might strengthen incentives to compete over the other dimensions of consumer choice, including quality, thereby contributing to dynamic efficiency. On the other hand, free provision might create a barrier to a profitable operation in the market, which harms welfare. An investment in more efficient production technologies alone will never be able to overcome free supply (since the long-run costs of such an investment are never zero, even if marginal cost is), so that investments in such technologies will never be profitable on a standalone basis. This implies that even if a new, improved technology can be developed by a profit-seeking competitor, the incentive to do so will be reduced. The incentive to invest in dynamic innovation depends on the cost of that innovation along with the cost of pro-

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[67] We assume that the free good actually benefits the consumer (e.g., it does not include free illegal drugs).

[68] Examples of industries in which the government has a strengthened incentive to ensure stability include banks and insurance companies, certain foods, drugs, and vaccines.

ducing the product, relative to the perceived increase in quality and the reduction in production costs that might result from such an investment.

Even if free goods reduce dynamic or productive efficiency, social welfare is not necessarily reduced. Like competition, efficiency is a means to the larger end of increasing social welfare. Social welfare will be reduced only if investments in dynamic and productive efficiency would have significantly contributed to welfare. This can occur when more efficient production technologies are available but are hindered by free goods in a world in which current technologies are characterized by lock-ins and path dependencies. Another example involves markets in which the free good itself exhibits significant network effects. Any change involves switching costs, which, compounded by learning costs, implies that users are subject to lock-in effects once the free good has achieved scale.[69] Although we do not delve into the issue of potential over-consumption and waste due to free goods, it is possible that there are such costs since the consumer may not internalize the economic costs of production and consumption.

All of the welfare-reducing examples discussed above raise a similar question: why would consumers choose the free good even if it harms their long-run welfare in this or in another market and create what Herrnstein et al. call "internalities"?[70] We offer several reasons. First, while the benefits to the consumer are direct, the costs are often indirect and may accrue in markets other than the one in which the free good is distributed. For example, accepting a free newspaper saves the costs of buying another one, or makes for a good pastime. Yet this may imply that other, more critical and fact-based sources of information are not accessed due to monetary or time limitations, indirectly affecting the democratic process in which public opinion serves as an important check on the use of political power. The consumer might therefore not be aware of such costs.[71]

Second, even if aware of these costs, the consumer might not be able to correctly evaluate them. This is exacerbated by the "deceptive framing" of a free offer, where firms misuse the term "free" to promote products and ser-

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[69] *See, e.g.*, Paul A. David, *Clio and the Economics of QWERTY*, 75 AM. ECON. REV. 332 (1985); W. Brian Arthur, *Competing Technologies, Increasing Returns, and Lock-In by Historical Events*, 99 ECON. J. 116 (1989) (both pioneering works on path dependence). For some criticisms, see, e.g., S.J. Liebowitz & Stephen E. Margolis, *The Fable of the Keys*, 33 J.L. & ECON. 1 (1990); S.J. Liebowitz & Stephen E. Margolis, *Path Dependence, Lock-in and History*, 11 J.L. ECON. & ORGS. 205 (1995); Stan J. Liebowitz & Stephen E. Margolis, *The Troubled Path of the Lock-in Movement*, 9 J. COMPETITION L. & ECON. 125 (2013).

[70] R.J. Herrnstein, George F. Loewenstein, Drazen Prelec & William Vaughen, Jr., *Utility Maximization and Melioration: Internalities in Individual Choice*, 6 J. BEHAV. DECISION MAKING 149, 150 (1993).

[71] For such a claim in the context of free two-sided Internet products see, for example, Hoofnagle & Whittington, *supra* note 21, at 613; Shelanski, *supra* note 4, at 1690.

vices that incur myriad hidden or nonpecuniary costs.[72] The fact that competing free goods might extract costs of a different nature might further complicate the comparison of these costs by consumers.[73] There is also a potential collective action problem, whereby each consumer might not take into account the externalities he imposes on the collective welfare of society. An offer of free might therefore create a combination of bounded rationality, imperfect information, and strategic behavior such as free riding, leading to the conclusion that we cannot always rely on the short-term preferences of consumers for free products as indicators of their long-term preferences and rely on them to ensure that long-term welfare is maximized.

All of the above analysis disregards fairness considerations. A fairness argument may be based on the perceived rules of the game: the market mechanism assumes the existence of a level playing field on which firms can enter and compete and even win if they are more productively or dynamically efficient than their rivals. However, this assumption does not hold when one or more of the firms is not seeking to maximize its profit. The basic assumption that allows a firm to profit so long as its product is better than that of its rivals and the cost difference is not larger than the benefit the consumer receives from the increased quality no longer applies. Accordingly, it might be argued that allowing firms to provide free products in the market, once other firms have made their investments based on the assumption that all firms will also base their prices, at a minimum, on costs of production, is not fair. Furthermore, even when a rival's costs of production are reduced, this does not imply that price will be significantly reduced. Rather, a new equilibrium is reached; in that equilibrium the profit-maximizing firm covers at least its costs of production. In contrast, the free good is provided at a much lower price that does not even cover production costs.

II. CASE STUDIES

To delve into these issues further, we analyze three real-world cases: the provision of free Internet browsers by Microsoft, free Internet search by Google, and free newspapers.

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[72] For the problem of deceptive framing resulting from free goods, see DAVID M. BOUSH ET AL., DECEPTION IN THE MARKETPLACE: THE PSYCHOLOGY OF DECEPTIVE PERSUASION AND CONSUMER SELF-PROTECTION 62–64 (2009) ("incomplete and biased representation of a decision problem that misleads [consumers'] perception and analysis of that problem, and thereby misleads their entire decision-making process."); David Adam Friedman, *Free Offers: A New Look*, 38 N.M. L. REV. 49, 68–69 (2008) (leading him to argue that free offers should be prohibited, except in very narrow cases such as the offer of a new product); Hoofnagle & Whittington, *supra* note 21, at 609 ("[I]nformation-intensive companies misuse the term 'free' to promote products and services that incur myriad hidden, nonpecuniary costs.").

[73] Newman, *supra* note 8, at 163.

A. FREE BROWSERS

In 1998 the U.S. Department of Justice sued Microsoft for violating Sections 1 and 2 of the Sherman Act. The DOJ claimed, in part, that giving away the Internet Explorer (IE) browser for free, with a promise that the browser would be forever free, was one of a number of practices the intent of which was to maintain Microsoft's monopoly on the PC-based desktop operating system.[74] IE was initially offered (at least briefly) as a separate product that was bundled with the operating system; later the browser was integrated with the operating system, making a traditional bundle into a technological tie. That claim was ultimately sustained by the District of Columbia Circuit Court of Appeals.[75]

At the heart of the economics underlying the claim by the DOJ was the view that bundling the browser with the operating system created a two-level entry problem for any firm that wished to compete in the operating system market. The entrant would have to offer both a browser and an operating system, and to do so successfully meant that the entrant would have to offer a set of applications that would be sufficiently appealing to make the purchase of the operating system economically viable. In essence, the free browser was not really free; the complementarity between the operating system and the browser meant that the combination of the products was costly, and indeed that the opportunity cost of the free browser was the increased cost of entering the operating system market.[76]

An important lesson flows from this analysis. When a product or service is free, it is essential to account for any products or services that are complementary to the free product or service. In many cases, this complementarity will simply reflect the social benefits of bundling, which are widespread. However, in some instances that complementarity will create or sustain a barrier to entry and may therefore be anticompetitive.[77] Here, as in many cases in which one good is free, the appropriate price for analytical purposes should reflect

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[74] United States v. Microsoft Corp., 87 F. Supp. 2d 30 (D.D.C. 2000), *aff'd in part, rev'd in part*, 253 F.3d 34 (D.C. Cir. 2001). The claim was similar to a later claim by the European Union that Microsoft's offer of a free media player was anticompetitive under Article 82 (now Article 102) of the EU Treaty. *See* Case COMP/C-3/37.792—Microsoft Corp., Comm'n Decision (Mar. 24, 2004) (summary at 2007 O.J. (L 32) 23), ec.europa.eu/competition/antitrust/cases/dec_docs/37792/37792_4177_1.pdf, *aff'd*, Case T-201/04, Microsoft Corp. v. Comm'n, 2007 E.C.R. II-3601 (CFI).

[75] *Id.*

[76] For a detailed description of the economics underlying the Microsoft case, see, e.g., Franklin M. Fisher & Daniel L. Rubinfeld, U.S. v. Microsoft*: An Economic Analysis*, 46 ANTITRUST BULL. 1 (2001).

[77] *See, e.g.*, Nicholas Economides, *Tying, Bundling, and Loyalty/Requirement Rebates*, *in* RESEARCH HANDBOOK ON THE ECONOMICS OF ANTITRUST LAW 121, 134–35 (Einer Elhauge ed., 2012); Barry Nalebuff, *Exclusionary Bundling*, 50 ANTITRUST BULL. 321 (2005).

the price of the bundle and/or the cost (or benefit) imposed by the provision of the good.

The Microsoft case raises another issue that is likely to arise in many cases in which goods are priced at zero—the intent of the zero-price competitor as a rough and preliminary indicator in the analysis of the conduct's economic effects. Was the zero pricing simply penetration pricing—a means to grow market share in a world in which the Netscape Navigator dominated? Or was the strategy an entry barrier driven strategy as just described. While the testimony of the economic experts for both sides highlighted the underlying debate, it is likely that the district court's opinion was driven by the documents and the testimony (either live or through deposition) of Microsoft personnel. That evidence strongly supported the view that Microsoft's intent was anticompetitive—that absent its anticompetitive goals, it would not have been profitable for Microsoft to offer a forever free browser.[78]

There is another lesson that flows from this discussion. While economic experts are not psychologists who can read the minds of those making decisions, economists are in a position to make inferences as to what decision makers will do in their own (typically profit-maximizing) self-interest. In this limited sense, an inquiry into the goal or goals of firms that offer goods and services for free can be informative. This evidence may enable the trier of fact to distinguish those strategies that are likely to be anticompetitive from those that are not.

B. FREE INTERNET SEARCH

Google answers user questions ("search queries") with lists of relevant Web sites and other information ("organic search" results), which are accompanied by advertising. While there may be opportunity costs, organic search queries are free—they have a zero price. In recent years Google has been accused of manipulating its organic search results to favor its own services.[79] Furthermore, Google has been accused of having substantial market power, if not a

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[78] *Microsoft*, 253 F.3d 34. Once the Microsoft browser became integrated with the Windows 98 operating system, the question of whether "forever free" was profit maximizing became moot because neither individuals nor OEMs could separate the browser from the operating system when they purchased new computers. As of March 2015, Microsoft's share of the desktop operating system market was 73.5%, a dominant position. *Top Operating System Share Trend*, NETMARKETSHARE.COM, www.netmarketshare.com/os-market-share.aspx?qprid=9.

[79] In 2013 the FTC concluded its investigation of Google's search engine practices. *See* Statement of the Fed. Trade Comm'n Regarding Google's Search Practices, Google Inc., FTC File No. 111-0163 (Jan. 3, 2013), www.ftc.gov/system/files/documents/public_statements/295971/130103googlesearchstmtofcomm.pdf. A related investigation by the European Commission remains open at this date. Case COMP/C-3/39/740—Foundem v. Google Inc.; Case COMP/C-3/39.775—1plus v. Google Inc.; Case COMP/C-3/39.768—Ciao v. Google Inc.

dominant market position, in search, which it has abused to increase its market power.[80]

James Ratliff and Daniel Rubinfeld (one of the authors of this article) explain that to evaluate the welfare effects of search-related conduct, defining search as a relevant market is too limiting.[81] They argue that the appropriate relevant market encompasses at a minimum the market for advertising that is driven by search or which competes with search-driven advertising. They also explain their view that Internet search in isolation—i.e., as distinct from and not intertwined with the sale of search advertising—is not a relevant market for welfare analysis. Such a narrow focus, they explain, ignores the two-sided nature of the search-advertising platform and the feedback effects that link the provision of organic-search results to consumers with the sale to businesses of advertising accompanying those search results.

Whether feedback effects are sufficient to imply that a relevant market encompasses both sides of any particular two-sided platform is ultimately an empirical matter specific to that platform. To explain, courts require the specification of one or more relevant markets in evaluating alleged monopolizing behavior (as with mergers). Market definition is not an end in itself; it is meant to be a useful legal construct in evaluating alleged anticompetitive effects.[82] When firms produce multiple products and the pricing of those products is interrelated, one should look at the profit-maximizing behavior of a firm that controls the pricing of all of the affected products in evaluating the definition of the relevant market.[83]

This situation applies in the context of organic search because organic search is a product that is complementary to the sale of advertising. Indeed, Google's ability to offer organic search as a free service relies crucially on its

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[80] Google may have market power in other markets, such as the market for information regarding consumer preferences and the online advertising market. In fact, the search engine constitutes only a small part of Google's current business. *See* Press Release, Eur. Comm'n, Statement of Objections to Google on Comparison Shopping Service (Apr. 15, 2015) (IP/15/4780).

[81] Ratliff & Rubinfeld, *supra* note 11.

[82] U.S. Dep't of Justice & Fed. Trade Comm'n, Horizontal Merger Guidelines § 4 (2010) [hereinafter DOJ/FTC Merger Guidelines], ftc.gov/os/2010/08/100819hmg.pdf ("Evidence of competitive effects can inform market definition, just as market definition can be informative regarding competitive effects"). In a merger context, the Guidelines propose that a relevant market be one in which a profit-maximizing hypothetical monopolist would find it profitable post-merger to "impose at least a small but significant and non-transitory increase in price ('SSNIP') on at least one product in the market . . . ." *Id.* § 4.1.1.

[83] *Id.* § 4.1.1 n.4 ("If the pricing incentives of the firms supplying the products in the candidate market differ substantially from those of the hypothetical monopolist, for reasons other than the latter's control over a larger group of substitutes, the Agencies may instead employ the concept of a hypothetical profit-maximizing cartel comprised of the firms (with all their products) that sell the products in the candidate market.").

concomitant revenue from the sale of search advertising. Were it not for the complementary search/advertising business, organic search would likely have to be offered on a paid basis or not at all because organic search offered to consumers for free would not be a viable standalone business. In any investigation of Google's search business, the market definition exercise must be performed on a broader terrain that includes at least Google's broader search advertising business as well as any other Google-affiliated businesses that rely significantly on their listing in Google's organic search results.

The literature on two-sided platforms strongly supports this conclusion.[84] Eric Emch and Scott Thompson, for example, point to the need to evaluate cost and demand on both sides of the market. Using a two-sided market analysis may increase the difficulty of market definition analysis, but such an analysis can be accomplished. For example, Emch and Thompson suggest using a SSNIP test of "the sum . . . of the two prices charged to the two sides of the market."[85] It is important to note that consideration of both sides of the market does not rule out the conclusion that it is appropriate to define a relevant market on one side only, depending critically on the context and the facts.

Google also illustrates how the exclusionary effects of providing a free product at one level of the market can depend on the size of multiproduct network effects. Google's primary profit-making market is the information market, as well as the information-on-information market, which provides information on the quality of information gathered. Google competes in the second market by integrating and aggregating several sources of information. If information gathered through one channel is worth much more in its aggregated form than the cost of the service which enables the gathering of the information, it might be profitable to provide the service for free, to gather more information, and do so over a large number of markets. New entry into each of the markets that serve as channels for gathering and utilizing information profitably might therefore be extremely difficult.

C. FREE NEWSPAPERS

The third example may be the most contentious: free newspapers. We refer to free full-fledged newspapers which include, *inter alia*, critical analyses of events and opinion pieces, whether printed or provided online. Free newspapers serve as a good example of two-sided markets, but more importantly,

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[84] The seminal paper is Rochet & Tirole, *supra* note 16.

[85] Eric Emch & T. Scott Thompson, *Market Definition and Market Power in Payment Card Networks*, 5 REV. NETWORK ECON. 45, 53–54 (2006); *see also* David S. Evans & Michael Noel, *Defining Antitrust Markets When Firms Operate Two-Sided Platforms*, 3 COLUM. BUS. L. REV. 667 (2005).

politically oriented free newspapers serve as an interesting example of non-monetary freestanding goods.

The phenomenon of free newspapers can be found around the world. Free media outlets are used to gain control and power in other spheres or markets in jurisdictions such as Canada, Italy, Israel, and Russia. In Israel, for example, the daily newspaper *Israel Today*, which is partly funded by American billionaire Sheldon Adelson and outrightly supports the current prime minister, is distributed free of charge. The paper has already become one of the two largest daily newspapers in Israel, while other newspapers are experiencing significant financial difficulties and some have gone bankrupt.

Newspapers are two-sided markets made up of readers and advertisers: the greater the number of readers, the more advertisers will be willing to pay for ads. Accordingly, a free newspaper might cover its costs of production through its profits from ads. Should this be the case, the analysis would be largely similar to that of Google search. For the analysis below, we assume that such costs are not covered by ads, at least not until the newspaper achieves a monopoly position in the market.

Free newspapers create important benefits beyond those that generally accrue from free goods. Probably most importantly, they increase the number of readers. Our basic assumption is that newspapers play a unique role in the democratic process and in guarding the rule of law.[86] One of the most important inputs of democracy is information: current, accurate and understandable information regarding the challenges of the day as well as the quality of the tools used by the current government to deal with them. Such information can create public pressure on the government to act in more welfare-increasing ways and might even bring about changes is the ruling parties.[87] Competition

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[86] *See, e.g.*, Keith Roberts, *Antitrust Problems in the Newspaper Industry*, 82 HARV. L. REV. 319 (1968); Sam Schulhofer-Wohl & Miguel Garrido, *Do Newspapers Matter? Short-run and Long-run Evidence from the Closure of The Cincinnati Post*, 26 J. MEDIA ECON. 60 (2013) (showing that in areas where local newspapers closed, less people took part or voted in the local elections); Maurice E. Stucke & Allen P. Grunes, *Antitrust and the Marketplace of Ideas*, 69 ANTITRUST L.J. 249 (2001); Maurice E. Stucke & Allen P. Grunes, *Toward a Better Competition Policy for the Media: The Challenge of Developing Antitrust Policies that Support the Media Sector's Unique Role in Our Democracy*, 42 CONN. L. REV. 101 (2009); Christine A. Varney, Assistant Att'y Gen., Antitrust Div., U.S. Dep't of Justice, Remarks as Prepared for the Newspaper Association of America: Dynamic Competition in the Newspaper Industry (Mar. 21, 2011), www.justice.gov/atr/public/speeches/268742.pdf; *see also* Associated Press v. United States, 326 U.S. 1, 20 (1945) (The First Amendment "rests on the assumption that the widest possible dissemination of information from diverse and antagonistic sources is essential to the welfare of the public, that a free press is a condition of a free society.").

[87] An obvious question is whether print newspapers (and their digital versions) still play as important a role in our day and age, when blogs and other online outlets also provide information. For questions such as what is the social roles of newspapers in a democratic society given new and alternative media outlets, see, e.g., Yochai Benkler, Lecture, *Freedom in the Commons: Towards a Political Economy of Information*, 52 DUKE L.J. 1245 (2003); RonNell Andersen

among newspapers often strengthens the motivation to invest in investigative journalism that exposes conduct that is harmful to society.

These unique attributes of the newspaper market lead to the conclusion that the consumption of newspapers creates externalities: whatever one reads might shape one's opinions and therefore affect a person's conduct and democratic choices. Competition in the newspaper industry is thus not merely the parochial concern of its participants.[88]

Now consider free newspapers that do not cover their costs but rather are published to gain or maintain political influence. Provision of a free newspaper requires other newspapers that do not enjoy such monetary backing to increase quality significantly to overcome the price difference as well as the free effect. This might not be achieved easily or at all, given high costs of production, imperfect information of consumers, and the short-run strategic choices of consumers, which might lead them to prefer a free newspaper over one for which they must pay.[89] This, in turn, might lead to the exit of other newspapers from the market, eventually leading to a highly concentrated market and to limited (or a tilted) investigative journalism and critical analysis of information. As elaborated above, even if the consumer does not wish this situation to occur in the long run, his short-run choices would not necessarily

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Jones, *Litigation, Legislation, and Democracy in a Post-Newspaper America*, 68 WASH. & LEE L. REV. 557 (2011); Nick Gamse, Note, *Legal Remedies for Saving Public Interest Journalism in America*, 105 NW. U.L. REV. 329 (2011). For purposes of the analysis below, we assume that print newspapers (and their digital versions) continue to play an important role, for several reasons. First, large parts of the population are still technologically challenged or have long-ingrained preferences for reading print newspapers. Second, quality newspapers invest more than any other media in news gathering. Third, the most important role of newspapers today, given that news flashes usually reach the public in real time and do not conform to newspapers' printing and delivery schedules, is the role of investigative journalism and analysis of current events based on a high level of professionalism and knowledge that are not always available in other sources. Finally, the consumer does not necessarily know how to sort out the quality of other sources of information. Newspapers thus still play an important role in a democracy, creating a basis for checks and balances in many areas of our lives, including governmental, consumer, and cultural spheres. This was recently exemplified by the role some major newspapers played in the social uprising against crony capitalism. *See, e.g.*, *What's Gone Wrong with Democracy*, ECONOMIST (Feb. 27, 2014), www.economist.com/news/essays/21596796-democracy-was-most-successful-political-idea-20th-century-why-has-it-run-trouble-and-what-can-be-do; *The New Age of Crony Capitalism*, ECONOMIST (Mar. 15, 2014), www.economist.com/news/leaders/21598996-political-connections-have-made-many-people-hugely-rich-recent-years-crony-capitalism-may. This conclusion does not belittle the role that the fifth estate plays in disseminating and creating information. Rather, it emphasizes the complementarity between these two information sources. Fourth, as Horton and Lande argue, empirical studies demonstrate that the quality and variety of several specific media functions, such as investigative reporting and local reporting, are often much better in the old media. Thomas J. Horton & Robert H. Lande, *Should the Internet Exempt the Media Sector from the Antitrust Laws?*, 65 FLA. L. REV. 1521 (2013).

[88] Varney, *supra* note 86, at 2–3.

[89] Masika shows that free newspapers take away market shares from traditional ones. Michal Masika, *Free Commuter Newspapers and the Market for Paid-For Daily Newspapers* (German Econ. Ass'n of Bus. Admin., Discussion Paper No. 10-17, 2010), geaba.de/DP/DP-10-17.pdf.

reflect his choice, due to free riding and imperfect information. Therefore, we cannot rely on short-run consumer choice as a reflection of long-term consumer interests. Accordingly, the analysis of the welfare effects of free newspapers should take into account the non-monetary effects on consumers in the circumstances of the specific newspaper market.

III. IMPLICATIONS FOR ANTITRUST POLICY

It has been argued by some that free goods should not be regulated at all because they do not operate in a "market"[90] or do not create negative welfare effects. This is a problematic suggestion because it automatically exempts free goods from antitrust scrutiny despite the fact that, as we have seen, they can negatively affect competition and welfare.

Rather, it is important to identify and to respond to the challenges free goods pose to antitrust tools which were designed to apply to markets in which firms compete over a combination of price and quality to increase their economic profit. We will show that antitrust analysis is not rigid; it is flexible enough to incorporate many of the concepts that have been discussed. Yet traditional price theory, the foundation for many antitrust tools, may not capture all relevant effects when free goods are involved. A more expanded approach is appropriate, which takes into account a wider set of effects created by free goods, beyond price and quality. Where antitrust, built on a foundation of price theory, does not currently possess the tools to deal with all the issues raised by free goods, there are ways that antitrust can be extended to deal with such issues. For example, one major question is whether antitrust can take into account the non-economic effects of the provision of some free goods on social welfare. This raises a host of related questions, such as whether and how we can quantify and balance such effects, and which institution is best fit to perform such tasks.[91] While our preference generally is towards the use of

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[90] *See, e.g.*, KinderStart.com, LLC v. Google, Inc., No. 5:06-CV-02507, 2007 WL 831806 (N.D. Cal. 2007). For European cases concluding that no market exists when products are free see Miguel Sousa Ferro, *"Ceci n'est pas un Marché": Gratuity and Competition Law*, CONCURRENCES REV., No. 1-2015 (Feb. 2015). The EU Commission has noted that "[w]hether an economic item is available to customers in limited or sufficient numbers does not determine the existence of a relevant market for such an item. The decisive factor is whether trade relationships based on payment exist in respect of a good or a service." Case IV/M.469—MSG Media Service, Comm'n Decision, 1994 O.J. (L 364) 1, ¶ 43 (Nov. 9, 1994) (with regard to free access TV). Ferro also reaches the conclusion that "giving away products for free is, as such and by itself, not an economic activity, and therefore is not subject to competition law" unless it affects a paid product market. Ferro, *supra*, at 11.

[91] *See, e.g.*, DANIEL A. CRANE, THE INSTITUTIONAL STRUCTURE OF ANTITRUST ENFORCEMENT (2011); CHRISTOPHER TOWNLEY, ARTICLE 81 EC AND PUBLIC POLICY (2009); Christopher Townley, *Is Anything more Important than Consumer Welfare (in Article 81 EC)?*, *in* 10 CAMBRIDGE Y.B. EUROPEAN LEGAL STUD. 345 (2008).

antitrust tools, we recognize that other regulatory tools might in some situations be more appropriate or play a complementary role.[92]

A. First Step: Analysis of Motivation

As a general rule, intent plays a minor role in antitrust analysis—the effects of the conduct, rather than the motivation of the parties, is most important.[93] The same practice generally should apply when free goods are involved. Yet the motivation for supplying a free good plays a significant role in a different sense: it is a helpful and efficient first step when analyzing the welfare effects of free goods. Recognizing the source of profit that the supplier intends to receive from the free good shapes the analysis from market definition, through market power, to welfare effects. To illustrate with a simple example, if the free good is bundled with a non-free good, recognizing the profit-based connection of the two parts of the bundle is an important first step. Indeed, as noted above, the recognition of the motivations of Microsoft to create barriers to competition in the market for operating systems helped shape the analysis of the free provision of its Internet browser.

B. Market Definition

Assuming that a market should be defined for antitrust analysis, some obstacles are immediately apparent when the good is provided for free.[94] The hypothetical monopolist test, which serves as a major tool for defining antitrust markets, exemplifies the difficulty. The test determines the boundaries of the market by asking whether a "small but significant and non-transitory increase in price" (SSNIP) by a hypothetical monopolist in the proposed market will lead to a sufficient number of consumers switching to other goods to render the price increase unprofitable. The market is broadened until such an increase would be profitable. Generally, a price increase of 5–10 percent is

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[92] One such example involves Part 251 of the FTC's guide on *Title 16—Commercial Practices*, which was intended to limit misrepresentations to consumers with regard to the real price paid for a product. FED. TRADE COMM'N, TITLE 16—COMMERCIAL PRACTICES § 251 at 175 (Guide Concerning Use of the Word "Free" and Similar Representations) (Nov. 10, 1971), www.gpo.gov/fdsys/pkg/CFR-2011-title16-vol1/pdf/CFR-2011-title16-vol1-chapI.pdf. The *FTC Guide* mandates free service providers to clearly disclose that such providers seek users' personal information in exchange for those services. Yet it has not been updated to deal with many of the issues arising in the information economy.

[93] Generally, in Section 1 cases it must only be demonstrated that the defendant intended to engage in the conduct that is asserted to violate the law. Under Section 2 most courts require intent to monopolize or to maintain an existing monopoly. Yet the inquiry is generally conducted on the basis of objective evidence and does not require proof of subjective intent. *See, e.g.*, Ronald A. Cass & Keith H. Hylton, *Antitrust Intent*, 74 S. CAL. L. REV 657 (2001) (citing cases).

[94] For the argument that such a definition is not a necessary step in finding an antitrust offense, at least in some cases, see Louis Kaplow, *Why (Ever) Define Markets?*, 124 HARV. L. REV. 437 (2010); Louis Kaplow, *Market Definition: Impossible and Counterproductive*, 79 ANTITRUST L.J. 361 (2013).

assumed to fulfill the test. Yet a 5–10 percent increase of a price of zero remains zero, and thus only the first circle of competitors will be captured by the test.[95] Furthermore, this price-based approach to market definition disregards other ways of exercising market power, such as reduced quality, variety or service, or diminished innovation,[96] which are often more typical of markets involving free goods.

The SSNIP test generally relates to a single market rather than to a business ecosystem with multiple types of non-competing products.[97] Accordingly, the SSNIP test does not capture the competitive constraints on the firm offering the free good, which often accrue in a companion market. The difficulties in defining relevant antitrust markets for free goods have led a federal court in *Kinderstart v. Google* to mistakenly conclude that it is not possible to have a relevant antitrust market for something that will always be given away for free.[98] The mistake is apparent from the fact that at least some of a market's operative mechanisms exist: consumers must still decide how much they wish to consume of the product and firms must decide how much to supply.[99] It is therefore important to identify the market which creates competitive constraints, the reason for which a market definition is used in the first place.[100]

Accordingly, we suggest that with regard to bundled goods, the SSNIP test should be adjusted to take into account the fact that profits accrue in a companion market and that firms consider both products simultaneously in maxi-

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[95] The limitations of the SSNIP test when applied to free goods are widely recognized. *See, e.g.*, 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*, 3 J. PEER PROD. 1 (2013); Evans, *supra* note 10, at 72; Sousa Ferro, *supra* note 90, at 12; 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 (2010); Geoffrey A. Manne & Joshua D. Wright, *Google and the Limits of Antitrust: The Case Against the Case Against Google*, 34 HARV. J.L. & PUB. POL'Y 171 (2011); R. Ian McEwin & Corinne Chew, *China—the* Baidu *Decision*, COMPETITION POL'Y INT'L, Autumn 2010, at 223; Polverino, *supra* note 9; Florence Thépot, *Market Power in Online Search and Social-Networking: A Matter of Two-Sided Markets*, 36 WORLD COMPETITION 195 (2013); Spencer Weber Waller, *Antitrust and Social Networking*, 90 N.C. L. REV. 1771 (2012).

[96] The Merger Guidelines recognize such effects in Section 1. DOJ/FTC Merger Guidelines, *supra* note 82, § 1.

[97] Sousa Ferro, *supra* note 90, at 10.

[98] Kinderstart.com LLC v. Google Inc., No. 5:06-CV-02507, 2007 WL 831806, slip op. at 5 (N.D. Cal. 2007) ("KinderStart has not alleged that anyone pays Google to search. Thus, the Search Market is not a 'market' for purposes of antitrust law."). A Chinese court reached an opposite conclusion on a similar case. *See* McEwin & Chew, *supra* note 95; Angela Huyue Zhang, *Using a Sledgehammer to Crack a Nut: Why China's Anti-Monopoly Law Was Inappropriate for* Renren v. Baidu, COMPETITON POL'Y INT'L, Spring 2011, at 277.

[99] Evans, *supra* note 10.

[100] For an interesting analysis of European case law and the lack of market definition clarity in markets for free products see Ferro, *supra* note 90. The EU Commission has, in some cases, defined the market to include only the part in which revenues are generated. One such example is the radio industry, in which it recognized an advertising market but not a market for broadcasting.

mizing profit.[101] Similarly, with regard to two-sided markets, cross-network effects should determine the boundaries of the market.[102] This undoubtedly complicates the analysis because information on the reciprocal effects of price changes on demand of all product markets may be subjective and difficult to measure. But, conceptually, it provides the necessary information with regard to the relevant elasticities of demand. We suggest using a similar method with freestanding free goods; the analysis of the profits gained from the sale of a related good, even if not bundled or two-sided, can be informative.

When this analysis is not performed, the analysis of the sources of competitive constraints is incomplete. A case involving Google's offer of an interactive geographic search engine, Google Maps, illustrates this point. Google's service, which is offered for free, allows users to locate addresses, create itineraries, and scan points of interest near a given address.[103] In a 2012 opinion, the Commercial Tribunal of Paris considered whether the offer of a free geographic search was an abuse of dominance in an online mapping market that included Bottin Cartographes, a paid service.[104] The Tribunal concluded that since most customers switched to Google's maps, it held a dominant position in markets for online mapping. Our analysis suggests that the Tribunal erred in its market definition. The appropriate market definition would likely include geographic-search-driven advertising. An evaluation of market power and potential dominance in that broader market would require an analysis of other advertising alternatives that were competing with Google.

Note that our suggestions apply both to a market in which all firms provide free goods as well as to markets in which only some firms supply free goods (as in the case of interactive online maps). In the latter case, relevant participants in the market potentially include both those supplying free goods as well as those providing paid goods. The free good, however, often creates a discrepancy between different tests for market delineation. Often, the free and paid goods share similar functionalities and characteristics, leading to a conclusion under the functionalities test that the products compete in the same market. Yet the result under the SSNIP test, which is based on an analysis of product demand relationships, will often be different. Even if we apply the

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[101] For a similar suggestion in the context of media markets, see, for example, Horton & Lande, *supra* note 87, at 1527–34 (citing sources).

[102] *See, e.g.*, Rochet & Tirole, *supra* note 16; Ratliff & Rubinfeld, *supra* note 11.

[103] *See* GOOGLE MAPS, maps.google.com.

[104] Bottin Cartographes v. Google Inc., Tribunal de Commerce [TCOM] [commercial court] Paris, 15th ch., Jan. 31, 2012, www.legalis.net/spip.php?page=jurisprudence-decision&id_article=3327 (in French). Google appealed the decision to the Court of Appeal of Paris. The Court decided to suspend the proceeding and ask the French Competition Authority to deliver an opinion on whether Google's conduct had to be considered anticompetitive under EU law, emphasizing the uncertainty in applying the law of predation in two-sided markets. Bottin Cartographes v. Google France, Cour d'appel [CA] [regional court of appeal] Paris Pole 5, ch. 4, Nov. 20, 2013.

test from the paid good to the free one,[105] it will rarely be the case that a small but significant increase in price of the paid good will create a significant switching effect. Rather, switching to the free good will often occur even below the competitive level. In such situations the goods will not be considered in the same market, unless they are bundled or involve two-sided markets, in which case our above suggestions apply.

Another method, used by the EU Commission in two-sided markets, is to focus on the market in which a profit-making trading relationship takes place.[106] Accordingly, the Commission has based its analysis of mergers of firms supplying free Internet search engines on the parties' positions in the relevant advertising markets.[107] Yet, as Polverino argues, this approach leaves important questions open, such as what to do in cases in which a competitor offers free goods or services to build a customer base, *before* conceiving a means of extracting profits from that initiative.[108] It appears that the approach of the Commission has been changing. In its more recent Microsoft/Skype merger decision the Commission defined one of the markets as Internet-based consumer communications services, in which most firms provided free goods.[109]

Finally, in markets in which all goods are provided for free, we suggest a variation of the SSNIP test that evaluates the market boundaries by measuring the effects of small but significant and non-transitory changes in quality (SSNIQ), in line with the Microsoft/Skype analysis.[110] The SSNIQ test examines switching once quality is reduced (rather than when price is increased). While differences in quality are more difficult to measure and quantify than differences in price, consumer behavior might still provide rough indicators about consumer preferences when quality changes. Note that quality measures may include both increases in dynamic efficiency as well as decreases in costs (e.g., privacy costs). Where the consumer pays for the free good in another currency, say attention or information, and such costs can be quantified, the

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[105] Sousa Ferro, *supra* note 90, at 12.

[106] *Id.*; Polverino, *supra* note 9, at 6.

[107] Case COMP/M.5727—Microsoft/Yahoo! Search Business, Comm'n Decision (Feb. 18, 2010), ec.europa.eu/competition/mergers/cases/decisions/M5727_20100218_20310_261202_EN.pdf; Case COMP/M.4731—Google/Doubleclick, Comm'n Decision, 2008 O.J. (C 184) 10. The Commission left open the question of whether a separate market exists for internet services.

[108] Polverino, *supra* note 9.

[109] Case COMP/M.6281—Microsoft/Skype, Comm'n Decision (Oct. 7, 2011), ec.europa.eu/competition/mergers/cases/decisions/m6281_924_2.pdf, *aff'd*, Case T-79/12, Cisco Sys. Inc. v. Comm'n, ECLI:EU:T:2013:635 (GC Dec. 11, 2013).

[110] Case COMP/M.6281—Microsoft/Skype; Horton & Lande, *supra* note 87, at 1528, 1531 (developing an approach already applied by some courts in markets in which quality is of high importance, such as media markets).

test can be applied to changes in cost (SSNIC), as suggested by John Newman.[111]

C. Market Power Analysis

Market definition is, of course, only an intermediate step in the analysis of the competitive constraints in a market, which in turn determine the extent of market power of a given firm. A correct market power analysis has the potential to overcome some of the difficulties of determining appropriate relevant markets when one or more goods are free.

Traditional market power analysis is not designed to apply to free goods. This is because, as Evans notes, "[A]ntitrust analysis often relies on the basic finding that prices tend to equal the marginal costs of production in competitive markets, and that deviations from marginal cost prices indicate market power."[112] Accordingly, market power is often viewed as the ability to raise price above the competitive level. Yet a simple cost-price difference of the free good will not provide any useful information. Rather, its application might lead to the conclusion that no market power exists at all, as the price does not rise at all above cost (and even stays constantly below it). Other tools must be sought.

We offer two suggestions. First, competitive constraints from related markets, even if they involve free goods, should be taken into account when analyzing market power.[113] Consider the simple case of bundled goods. Here, the analysis of market power should include the complementary good(s) sold at a positive price, because providing the free good in one market enables the seller to increase the costs and entry barriers in a related one and cover the costs involved in offering both products. Accordingly, competitive constraints from free goods over paid ones can be taken into account, even if they are not considered to operate in the same market due to the SSNIP test.[114] A similar logic and analysis should be applied to freestanding free goods that are assumed to increase profits in another market (e.g., two-sided markets or pre-

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[111] Newman, *supra* note 8, at 181–82.

[112] Evans, *supra* note 10, at 82.

[113] *See also id.* at 84–85 ("When an antitrust or merger analysis involves a product that is made available for free—or where the paid product in question has a twin product whose price is zero—there is no substitute for carefully considering the economic interrelationships between these products and the overall competition between providers of the paired products or one or the other product.").

[114] *See also* Sousa Ferro, *supra* note 90, at 12. For example, in its decisions regarding the exclusivity provisions included in contracts for the supply of free freezers, the EU antitrust authorities considered the effects of the free freezer on the market for frozen goods sold in such freezers. *See* Case T-65/98, Van den Bergh Foods Ltd v. Comm'n, 2003 E.C.R. II-4563 (CFI), *upheld on appeal* Case C-552/03P, Unilever Bestfoods (Ireland) Ltd v. Comm'n, 5 C.M.L.R. 27 (2006).

mium versions) or in the same market in the long run. Put differently, the benefit to the supplier should be sought elsewhere, rather than in the market for the free good. According to the same logic, a market power analysis cannot be based on revenues from the free good alone.

Our second suggestion is that market power analysis should not focus solely on price. Rather, effects on other aspects of competition, such as quality, consumer choice and information costs, should not be disregarded. The radio station mergers of the 1990s, analyzed by Maurice Stucke and Alan Grunes, illustrate the importance of this inclusive welfare analysis. The 1996 Telecommunications Act, which relaxed ownership limitations on radio station ownership, brought about massive consolidation. The DOJ, which reviewed many of these mergers that created high levels of concentration, focused its analysis on the implications of the mergers on prices for advertisers and paid relatively little attention to the effects on the content offered in the broadcasting market, because radio services were provided for free. The latter might have included lower quality of radio broadcasts (including lower investments in costly investigative journalism), higher attention costs of listeners in the form of more advertisements, and even harm to the democratic process. Stucke and Grunes argue that these costs were disregarded because of the focus on price effects, thereby leading to potential false negative errors.[115]

An interesting set of questions regarding the analysis of market power arose in the Microsoft/Skype merger.[116] The market for Internet-based communications services is characterized by rapid innovation and free goods. The EU General Court found that the fact that all services are offered free of charge is a relevant factor in assessing the market power of the new entity. Any attempt to raise price would only encourage consumers to switch to firms that continue to provide goods for free.[117] Likewise, if the new entity decided to stop innovating, it would also run the risk of reducing its attractiveness given the level of innovation in the market and given low consumer switching costs.[118] Observe that when all firms provide free goods, the free effect is no longer relevant to competition among the free providers themselves.

D. ANALYSIS OF WELFARE EFFECTS

Market definition and market power serve a wider goal: determining the welfare effects of the relevant conduct. With the exception of free goods that are not motivated by profit incentives, the welfare effects of free goods should

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[115] Maurice E. Stucke & Allen P. Grunes, *Why More Antitrust Immunity for the Media Is a Bad Idea*, 105 Nw. U. L. REV. 1399, 1411–12 (2011); *see also* Newman, *supra* note 8, at 169–72.

[116] Case COMP/M.6281—Microsoft/Skype, Comm'n Decision (Oct. 7, 2011).

[117] *Id.* ¶ 121.

[118] *Id.*

focus on the interaction of the free good with interrelated goods in which the provider expects to generate positive profit. An analysis which focuses on the free good alone would often lead to the simplistic conclusion that the free good creates positive welfare effects, since the consumer receives the product at a price which does not even cover production and distribution costs. In our view, the analysis should be expanded to include long term effects in the same market as well as in interdependent and affected markets.[119] The converse is also true: should the relevant issue arise in the affected market, the effects of the free good on the affected market should be taken into account.

Take, for example, an analysis of potential exclusionary effects of free goods. To be complete, barriers to the entry of as-efficient or more efficient firms should be recognized in all affected markets. Similarly, a merger or joint venture analysis of firms with free and affected goods should include them all. If the focus is only on free goods, there may be false negatives. If the focus is only on paid goods, false positives may arise.

The welfare analysis performed in Part II leads to the following conclusions. First, a free good does not imply a lack of adverse welfare effects. Accordingly, we should not automatically exempt free goods from antitrust scrutiny. Second, the creation or strengthening of significant market power is an essential but not sufficient condition for negative welfare effects.

Third, the strongest case for potential negative effects can be made in cases involving a free good bundled with a product that is sold at a positive price. While bundling will often be procompetitive, in some instances bundling can increase or sustain barriers to entry with anticompetitive consequences. Furthermore, the free effect can increase such effects.

Standalone free goods do not themselves create an antitrust problem. They may be motivated as a penetration strategy to grow market share, and they may be supported financially by the offer of related (e.g., premium) products that are sold at a positive price. For this reason, real free goods should enjoy a presumption of legality, placing a strong onus of proof that they actually do harm competition and welfare on the one arguing so.

Yet such goods can also create negative welfare effects. For example, free goods offered in a two-sided market in which one side of the market exhibits zero pricing while the other side has a positive price, can create exclusionary effects. While more complex than one-sided markets, the antitrust analysis of two-sided markets should follow the same paradigm, consisting of an evalua-

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[119] *See* Evans, *supra* note 10 ("To understand how a business practice, or prohibiting a business practice, affects consumer welfare one needs to consider both products and their interdependencies, together.").

tion of market definition, market power, and competitive effects.[120] The same is true with regard to upgraded products that operate in the same market.

Fourth, as mentioned previously, the analysis should place less emphasis on price as an indicator of welfare, and more emphasis on quality. For example, it might be the case that an exclusionary bundling would have no substantial effect on the price of the paid product, yet still reduce the overall quality of the products.

Fifth, the as-efficient competitor test, often used to differentiate use from abuse of market power,[121] does not apply in its regular form. This test determines whether the monopolist's conduct prevents an equally or more efficient competitor from entering or expanding in the market. If so, under the test, the conduct is deemed illegal. Applying it in a simplistic form to free goods would create false positives: if we compare the production costs and the quality of the free good to other products, it may be the case that more efficient producers would have to exit the market. The free good provider survives only because it is willing to lose revenue on the product (often potentially making up for it elsewhere). Therefore, the as-efficient competitor test cannot serve as a primary or sole indicator that welfare is harmed.

Sixth, our analysis is based on a welfare-maximizing objective. Should protection of the competitive process or competition on the merits be considered the overarching goal, the analysis would change.

Finally, free goods that are part of a strategy of increasing profits in another market[122] 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. The answer to this question will determine what enters into the welfare analysis. Should the answer be negative, many strategies that involve free goods would be prohibited, despite the fact that their overall welfare effects might be strictly positive. Indeed, both the United States and the European Union seem to require Pareto optimality in other contexts.[123] To our

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[120] With the caveat that there are some instances in which competitive effects can be evaluated without the formal market definition step.

[121] RICHARD A. POSNER, ANTITRUST LAW 196 (2d ed. 2001); George A. Hay & Kathryn McMahon, *The Diverging Approach to Price Squeezes in the United States and Europe*, 8 J. COMPETITION L. & ECON. 259 (2012); John Vickers, *Abuse of Market Power*, 115 ECON. J. F244, F256–58 (2005).

[122] The case of premium goods in the same market creates an interesting case, since it affects a sub-group of the consumers who enjoy the free product.

[123] For a discussion of this issue in other contexts, see, e.g., Giorgio Monti, *Regulatory Holidays in Utilities Regulation and EU Competition Law: A Case Study on the Role of Efficiency Considerations in Economic Law*, *in* EUROPEAN COMPETITION LAW ANNUAL 2012, at 55 (Philip Lowe & Mel Marquis eds., 2014) (arguing that in EU law the consumers that benefit should also be the ones harmed by the conduct); Jan M. Rybnicek & Joshua D. Wright, *Outside In or Inside Out?: Counting Merger Efficiencies Inside and Out of the Relevant Market*, *in* 2 WILLIAM E.

knowledge, this important issue has not been addressed clearly in the context of free goods. We suggest adopting a rule that allows for some balancing in the case of free goods to allow consumers to enjoy the benefits of the free goods.

E. Predatory Pricing

One of the prohibitions that must be adjusted when applied to free goods is predatory pricing. Predatory pricing assumes a two-staged strategy. In the first stage the monopolist sets its price below cost to deter even its as-efficient rivals from entry or expansion. In the second stage, the monopolist raises its price and recoups its investment, which it can do if competitors were excluded and entry barriers are significant.

Under U.S. federal law and EU law, the legal requirements to prove predatory pricing have a core requirement: that the monopolist price its product below an appropriate measure of cost. This requirement is easily met with regard to free goods: zero is clearly below cost. Once this condition is met, EU law creates a presumption of illegality and shifts the onus to the monopolist to prove that such pricing was objectively justified.[124] U.S. law also requires evidence that there is a substantial likelihood of recoupment.[125] When applying such requirements to free goods without making any adjustments, both false negatives and false positives can occur.

EU law might create false positives; a court can unjustifiably reach a conclusion of predation if the analysis only focuses on the first stage, without verifying that the second stage (price rise) occurs.[126] Indeed, when narrowly applied, a price of zero seems to be the worst type of predation, which does not allow any monopolist, efficient or otherwise, to cover its costs. This is exemplified by the French case, *Bottin Cartographes*, noted above.[127] The case involved map applications created by Google that users could download and embed for free in their Websites. A French firm that previously sold com-

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KOVACIC: AN ANTITRUST TRIBUTE 443 (Nicolas Charbit et al. eds., 2014) (efficiencies under U.S. law only considered in the same market in which the merger takes place); Christopher Townley, *Inter-Generational Impacts on Competition Analysis: Remembering Those Not Yet Born*, 11 EUR. COMPETITION L.J. 580 (2011).

[124] Case C-62/86, AKZO Chemie BV v. Comm'n, 1991 E.C.R. I-3359. *But see* Stefano Barazza, Post Danmark*: The CJEU Calls for an Effect-based Assessment of Pricing Policies*, 3 J. EUR. COMPETITION L. & PRACTICE 466 (2012).

[125] Brooke Grp. Ltd. v. Brown & Williamson Tobacco Corp., 509 U.S. 209 (1993).

[126] The EU Commission has recognized the need to look at other sources of revenue in two-sided markets. Eur. Comm'n, DG Competition, *Guidance on the Commission's Enforcement Priorities in Applying Article 82 EC Treaty to Abusive Exclusionary Conduct by Dominant Undertakings*, 2009 O.J. (C 45) 7, at 11 n.3 (Dec. 3, 2008).

[127] *See supra* note 104; *see also* Fleischer & Smith, *supra* note 46; Miguel Rato & Nicolas Petit, *Abuse of Dominance in Technology-Enabled Markets: Established Standards Reconsidered?*, 9 EUR. COMPETITION J. 1, 50 (2013).

peting online mapping services brought charges, arguing that supplying the maps for free amounted to an abuse of dominance. In a much-criticized decision, the court agreed, ordering Google to compensate its competitor. The court first defined the market as the market for online cartography services. It then applied the EU rule for predatory pricing,[128] according to which prices below average variable costs are presumptively unlawful. A price of zero for a license, it found, does not cover Google's variable costs.

The court did not consider Google's arguments that consumers benefit both from low price in the map market and from integration to be a valid objective justification. Based on these facts, it reached the conclusion that Google's conduct was exclusionary and illegal. By the same logic, the free provision of any free good by a monopolist operating in a two-sided market would appear to be illegal.

This decision clearly indicates the dangers of an overly simplistic and formalistic application of antitrust prohibitions. Its mistake lies in the fact that the French court disregarded the wider commercial motivations for supplying the free product: recouping investments in another, interconnected market (online advertising), the demand for which grows with the number of users of Google's services.[129] Disregarding the product's two-sided market, and its cross-network effects, the court possibly prevented a welfare-increasing business strategy.[130] Furthermore, a formalistic application of the EU rule to "real" free goods might also reach a conclusion of illegality, despite the fact that the negative welfare effects of such conduct rarely occur. Accordingly, the below-cost analysis of predatory pricing allegations should be based on the price charged either to indirect users in the case of multi-sided markets or on the price charged for premium products in the case of versioning.[131]

A requirement of potential recoupment, as required in the United States, solves this false positive problem. Recoupment is based on the assumption that the monopolist is engaged in a two-stage strategy in which it first lowers its price to prevent the entry or survival of its equally or more efficient rivals and, once this goal is achieved, raises its price and recoups its losses at the expense of the consumer. In a traditional case, it is assumed that, if recoup-

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[128] *See, e.g.*, *AKZO*, 1991 E.C.R. I-3359; Case T-340/03, France Telecom SA v. Comm'n, 2007 E.C.R. II-107 (CFI), *on appeal*, Case C-202/07P, 2009 E.C.R. I-2369. For the Commission's sacrifice test see Eur. Comm'n, *Guidance on the Commission's Enforcement Priorities in Applying Article 102 TFEU to Abusive Exclusionary Conduct by Dominant Undertakings*, 2009 O.J. (C 45) 7.

[129] Giacomo Luchetta, *Is the Google Platform a Two-Sided Market?*, 10 J. COMPETITION L. & ECON. 185, 185 (2014) (Google is "a retailer of eyeballs, or users' attention.").

[130] Stephan Behringer & Lapo Filistrucchi, *Areeda-Turner in Two Sided Markets*, 46 REV. INDUS. ORG. 287 (2015); Weyl, *supra* note 15, at 1649.

[131] Rato & Petit, *supra* note 127.

ment is not possible in the same market, consumers will gain from the low price in the first stage and not be harmed by the planned (but unsuccessful) high price in the second stage. It is the failure of the monopolist to achieve its goal due to competition in the second stage that drives this outcome. Since the monopolist cannot recoup in the free product market, it will not be found to engage in predation. This result is further strengthened by the fact, noted above, that once accustomed to a free good, consumer willingness to pay for the product is substantially reduced.

Yet such a narrow application of the recoupment requirement might create false negative errors. The likelihood of such errors depends on the sources of profit that will be taken into account by decision makers when evaluating whether a firm has engaged in predatory pricing. A too-narrow basis might create opportunities for firms to circumvent the prohibitions. Were recoupment to be required only in the free product's market, then the firm would never be found to engage in predatory pricing given that the good is provided free forever, unless an upgraded version is considered to operate in the same market. Accordingly, to be economically meaningful and capture the real effects in the market, recoupment should be sought not only in the market for the free product but also in other, interrelated markets, regardless of the monopolist's ability to recoup its economic costs with regard to the free product. Even if recoupment were to be expanded to such markets, however, much depends on the timeframe adopted for recoupment as well as what kinds of benefits will be included. We will return to this point below.

In *Wallace v. IBM Corp.*[132] the issue was whether the provision of free software violated the antitrust laws. The plaintiff argued that it would like to compete with Linux, a FOSS software product, by writing a competing operating system, but that this is impossible so long as Linux is available for free. In an opinion written by Judge Frank Easterbrook, the Seventh Circuit dismissed the claim. According to Judge Easterbrook, when recoupment is improbable even if some producers exit or do not enter the market, there is no antitrust problem. The low price reflects "efficient production and enduring benefits to consumers."[133] Furthermore, employing antitrust law to drive prices up would turn the Sherman Act on its head. Yet, as our analysis shows, this intuitive result does not always hold true. Also, when path dependence is created, which eventually leads to lower quality than is optimal even if goods are free, welfare can be harmed.

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[132] 467 F.3d 1104 (7th Cir. 2006).

[133] *Id.* at 1106.

F. TYING

An obvious prohibition that has relevance in the case of bundled goods is tying. The prohibition of tying is based on an economic theory of exclusion: the use of market power in the tying product to gain or increase market power in either the tied or the tying product's market. While differences exist, the basic elements of the offense are relatively similar across jurisdictions. They include: two separate products; the tying firm must possess significant market power in the tying product market; and coercion—the tying firm does not give customers a realistic choice to receive the tying product without the tied product.[134] It is then assumed that the practice has exclusionary effects on competition since it restricts consumer choices between competing products in the tied product market.[135]

When applied to free goods, some interesting questions arise with regard to coercion. On the one hand, the conventional meaning of coercion does not apply, since the tied product does not cost anything to the consumer. In this limited sense, the consumer is not deprived of his "freedom of choice."[136] On the other hand, under some market conditions the free good can increase entry barriers significantly. Furthermore, the free good creates a nudge effect that strengthens the motivation of the consumer to buy the bundle, even beyond his otherwise revealed preferences. From this perspective, the tying firm is exploiting consumer behavioral biases.

The European case of *Van den Bergh Foods* (VB)[137] exemplifies this point. VB supplied ice cream retailers with freezer cabinets free of charge, provided that they were used exclusively for VB ice creams. The Court found VB's exclusive cabinet distribution agreements to constitute illegal tying. Despite the fact that it was theoretically possible for retailers to sell ice creams of other retailers, the limited space in outlets and the popularity of VB's products would have led rational retailers bound by the agreement to sell only VB ice cream and to refrain from selling a competing brand of impulse ice cream.[138] The free provision of the freezers further increased entry barriers.

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[134] Case T-201/04, Microsoft Corp. v. Comm'n, 2007 E.C.R. II-3601 (CFI), ¶ 955 (Customers must be deprived of the "realistic choice of buying the tying product without the tied product.").

[135] Tying prohibitions are generally based on theories of exclusion or price discrimination. For an interesting theory that justifies tying due to its alterations to the equilibrium in the subsequent pricing game, which enable the monopolist to capture some of the profits of a rival producer, see Dennis W. Carlton, Joshua A. Gans & Michael Waldman, *Why Tie a Product Consumers Do Not Use?*, 2 AM. ECON. J.: MICROECON. 85 (2010).

[136] Case 85/76, Hoffmann-La Roche & Co. AG v. Comm'n, 1979 E.C.R. 461, ¶ 60.

[137] Case T-65/98, Van den Bergh Foods Ltd. v. Comm'n, 2003 E.C.R. II-4653 (CFI); *see also* Case T-7/93, Langnese-Iglo v. Comm'n, 1995 E.C.R. II-1533 (CFI), *upheld on appeal*, Case C-279/95, Langnese-Iglo v. Comm'n, 1998 E.C.R. I-5609.

[138] *Van den Bergh Foods*, 2003 E.C.R. II-4653, ¶ 97.

G. NON-MONETARY COSTS OF FREE GOODS

An important and difficult question is whether antitrust should endeavor to identify and quantify the non-monetary costs of free goods, such as political influence or harm to democracy. The stakes are high. Were such costs to be disregarded, conduct that might significantly harm welfare may go unchecked. Non-monetary costs might affect the efficient workings of the market, at least in the long run, thereby affecting consumer welfare in a manner that conforms with traditional analysis. Furthermore, were the threat of antitrust enforcement significant, firms might try to circumvent existing rules by taking their benefits in non-monetary forms. Predatory pricing serves as an example: Where recoupment is required, should only monetary recoupment be taken into account? If so, there will be instances in which the recoupment is given in another currency that harms consumers, which will not come under the rule, even if these costs may translate in the long run into monetary costs. Accordingly, looking only for monetary costs seems to resemble looking under the streetlamp simply because that's where the light is.

Yet identifying and quantifying non-monetary effects poses significant institutional difficulties for an antitrust authority.[139] First, it complicates decision making. A multivalued objective function creates confusion and conflict. But, more importantly, the authority has no expertise in such tasks. What weight should it give, for example, to increased political influence or to limiting high-quality investigative journalism?[140] The economic models in the toolbox of the authority provide no clear, concrete and certain answer. Although the ease of measurement is not a proxy for importance, the difficulty is to account for non-monetary costs in an analytical analysis capable of solving particular cases.[141] In the absence of a common denominator, balancing among various costs is ultimately subjective. This problem is especially severe where potential sanctions are also criminal, but even less severe sanctions can create a chilling effect on procompetitive conduct if rules and methods of analysis are unsettled. In such settings an administrative alternative, which emphasizes problem solving rather than assigning blame for norm violation might be a

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[139] *See* CRANE, *supra* note 91.

[140] *See, e.g.*, *id.*; TOWNLEY, *supra* note 91.

[141] These problems have long been recognized. *See, e.g.*, William F. Baxter, *Responding to the Reaction: The Draftsman's View*, 71 CALIF. L. REV. 618, 621 (1983); Harry First, Book Review, 52 N.Y.U. L. REV. 947, 968 (1977) (reviewing RICHARD POSNER, ANTITRUST LAW: AN ECONOMIC PERSPECTIVE); ABA, REPORT ON ANTITRUST POLICY OBJECTIVES 20 (2003), www.americanbar.org/content/dam/aba/administrative/antitrust_law/report_policyobjectives.authcheckdam.pdf (antitrust analysis based primarily on economic criteria provides "a common language, which furthers transparency and facilitates understanding and critical appraisal; and recognized objective criteria and modes of analysis, which can limit discretion of decision-makers and increase transparency.").

better solution.[142] Yet this is beyond the mandate of the antitrust authority. Second, it might be argued that the authority does not have a democratic mandate to quantify and balance such considerations. Third, engagement in such analysis might even create negative reputational effects on the authority, which might harm its ability to perform its traditional tasks.

For these reasons, we suggest that the authority not stray far from clear and generally acceptable economic models. Acknowledging that antitrust provides only an incomplete analysis of social welfare in cases where non-monetary costs are significant, it might be appropriate to supplement antitrust with other regulatory measures. To ensure that public preferences not expressed in market choices are not disregarded, if one can identify specific markets in which non-monetary price might be high (e.g., media, telecommunications, Internet), specific laws should be applied.

Yet it is important to note that, even if non-monetary costs will not be taken into account in an antitrust analysis, the effects on competition and its outcomes— including quality and price—are still relevant for such an analysis. To illustrate, even if part of the costs to consumers of providing a free newspaper is increased political influence that might harm democracy, and such an effect will be disregarded in the antitrust analysis, this does not imply that any effects on price and quality should be disregarded as well. Furthermore, competition analysis can help inform other regulations. Consumer protection law provides an interesting example. Some courts have decided that, because an online free good in a two-sided market was provided for free, no payment took place, and consequently consumer protection laws do not apply.[143] A market analysis would have revealed that although the consumer's payment was not monetary, the information indirectly provided about his preferences as well as his willingness to accept targeted ads are valuable assets in the market.

H. ATTEMPTED MONOPOLIZATION

Finally, we highlight the increased need created by free goods to capture under competition laws attempts to monopolize. Attempted monopolization captures conduct that will most likely succeed in creating a threat of monopoly and, in the course of so doing, harms competition. The logic behind such an expansion of the monopolization prohibition is similar to that behind merger review, which also regulates conduct ex ante, in its incipiency, recognizing that once the conduct takes place it would be very difficult to undo its effects.

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[142] CRANE, *supra* note 91, at 103.

[143] *See, e.g.*, St-Arnaud v. Facebook Inc., 2011 QCCS 1506 (CanLII) (Canada, Quebec Superior Ct.); *In re* Facebook Privacy Litig., 791 F. Supp. 2d 705 (2011).

Free goods might increase the pace of penetration or expansion in a market, which is especially important where the market is characterized by network effects and where tipping may occur. The free effect, when used as part of an anticompetitive exclusionary strategy, can increase the ability of a firm to gain a monopolistic position in the market relatively quickly. This implies that it is important to police the conduct before the structure of the market changes significantly.

The attempted monopolization prohibition in the United States serves to remove the gap between the limitations imposed on the unilateral conduct of dominant firms and the fact that no such limitations exist on not-yet dominant enterprises. However, most jurisdictions, including the European Union, do not have such as rule, despite some calls to adopt it.[144] EU law partially solves this problem by defining dominance in a much more lenient way, which might apply to firms that have even less than a 50 percent market share.[145]

IV. CONCLUSION

Free goods play an increasingly important role in our information-based society. This is not surprising given that the marginal cost of providing an online digital good might be close to zero. New technologies such as 3D printing, bio printing, and robotics will probably further expand this economy of plenty. It is therefore essential that the welfare effects of free goods be recognized and analyzed.

While free goods generally create positive welfare effects, in some situations even "real" free goods might carry a hidden price tag. Such a price tag can be monetary or non-monetary, in the short run or in the long run. Antitrust tools and rules should be modified to account for the factors unique to free goods. Free goods often add a level of complexity and require analytical flexibility and awareness, and traditional tools may not deal effectively with modern-day challenges.

While we are optimistic about the ability of antitrust policy to manage most of the problems we have raised, we have shown that antitrust will not always provide the solution for managing markets for free goods. In some cases other regulatory tools can play a complementary role.

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[144] Michal S. Gal, *Below-Cost Price Alignment: Meeting or Beating Competition? The France Telecom Case*, 28 EUR. COMPETITION L. REV. 382 (2007).

[145] Avishalom Tor, *Unilateral, Anticompetitive Acquisitions of Dominance or Monopoly Power*, 76 ANTITRUST L.J. 847 (2010).