UCLA LAW REVIEW

Free: Accounting for the Costs of the Internet's Most Popular Price

Chris Jay Hoofnagle
Jan Whittington

ABSTRACT

Offers of free services abound on the Internet. But the focus on the price rather than on the cost of free services has led consumers into a position of vulnerability. For example, even though internet users typically exchange personal information for the opportunity to use these purportedly free services, one court has found that users of free services are not consumers for purposes of California consumer protection law. This holding reflects the common misconception that the costs of free online transactions are negligible—when in fact true costs may be quite significant. To elucidate the true costs of these allegedly free services, we apply a transaction cost economics (TCE) approach. Unlike orthodox economic theory, TCE provides a framework for analyzing exchanges in which the price of the product seems to be zero. Under a TCE analysis, we argue that information-intensive companies misuse the term "free" to promote products and services that involve numerous nonpecuniary costs. In so doing, firms generate contractual hazards for consumers, ignore consumer preferences for privacy, and mislead consumers by creating the impression that a given transaction will be free.

While psychological research and behavioral economics may support an outright ban of free offers because of their biasing effects, TCE suggests reforming governance structures to place the business risks associated with free transactions more firmly in the hands of businesses. We suggest alterations to governance structures—such as the Federal Trade Commission's *Guide Concerning Use of the Word "Free"* (FTC Guide)—to curb the incentives of firms to raise transaction costs for consumers. The FTC Guide provides support for two of the consumer protection measures we propose: first, a requirement that free service providers clearly disclose that such providers seek users' personal information in exchange for those services, and, second, the establishment of a regular price before providers can market a service as free. We further argue that the recognition of users of free services as consumers for purposes of consumer protection law would better align incentives and ensure users access to legal redress against some of the most popular services on the Internet. Lastly, we suggest the adoption of alternative governance structures designed to reduce the cost of transacting by curbing the collection of personal information from consumers of free services and by enhancing the rights of consumers to govern the dispersal of personal information from free online services to third parties.

61 UCLA L. Rev. 606 (2014)

AUTHOR

Chris Jay Hoofnagle is a Lecturer in Residence at the University of California, Berkeley, School of Law. I would like to thank Tara Garcia for her assistance in researching free regulations and cases, as well as Frederik Zuiderveen Borgesius, David A. Friedman, Natali Helberger, Eric Malin, Karl-Nikolaus Peifer, Randal C. Picker, and Daniel J. Solove.

Jan Whittington is an Assistant Professor in the Department of Urban Design and Planning, and the Director of Infrastructure Systems Research in the Center for Information Assurance and Cybersecurity at the University of Washington.

We are both grateful to David Medine and participants at the Privacy Law Scholars Conference for their workshop on a draft of this Article, as well as the student editors of the *UCLA Law Review*, Samantha Booth, and Zack Schenkkan.

TABLE OF CONTENTS

INTRODUCTION

> Sign Up: It's free and always will be.
>
> —Homepage of Facebook.com[1]

The word "free" has many uses in the English language. The Oxford English Dictionary lists twenty-seven definitions, multiple popular phrases, and dozens of special uses. It defines "free" in the context of commerce as "[g]iven or provided without charge."[2]

Many modern internet business models promise the user services without charge. These are marketed as free services. Chris Anderson's provocative book, *Free: The Future of a Radical Price*, argues that in the digital world, free pricing is an inevitable and normatively acceptable approach to pricing internet services.[3] He argues that the physical world is limited in resources, while the digital world is abundant.[4] Businesses can leverage this abundance and give services away while still making money by charging for other services that remain scarce.[5] In a previous work, Anderson claimed that because of efficiencies in the provision of digital services, "we are entering an era when free will be seen as the norm, not an anomaly."[6]

Free internet models may offer several advantages to businesses. As Anderson argues, for example, such models enable massive numbers of consumers to adopt new services.[7] But on closer examination, Anderson's digital world of free services shares the economic realities of the physical world. And psychologically, the term "free" acts as an enticement to consumers to try a product without realizing its downstream costs.

We argue that conceiving of transactions as free can harm both consumers and competition. These exchanges often carry a hidden charge: the forfeit of one's personal information. The service provider may expect to earn revenues from the personal information collected about consumers who devote their attention to advertising and other services, such as games, from third parties. The

1. FACEBOOK, https://www.facebook.com (last visited Dec. 19, 2013).
2. *Free Definition*, OXFORD ENG. DICTIONARY, http://www.oed.com/view/Entry/74375 (last visited Dec. 19, 2013).
3. CHRIS ANDERSON, FREE: THE FUTURE OF A RADICAL PRICE 12–14, 75–93, 135–161, 241–243 (2009).
4. *See id.* at 2–4, 12.
5. *See id.* at 20–29, 241–43.
6. Chris Anderson, *Free! Why $0.00 Is the Future of Business*, WIRED, Mar. 2008, at 140, 194.
7. *Cf.* ANDERSON, *supra* note 3, at 123.

more time the consumer spends using the service and revealing information, the more the service can adjust the product to reveal more information about the consumer and tailor its advertising of products to that consumer's personal information.

Law professor David A. Friedman has forcefully argued that presenting offers as free is deceptive to consumers in many contexts.[8] Friedman details psychological and behavioral economic research to demonstrate the emotional appeal of free offers and their biasing effects.[9] The salience of free offers poses a problem of "deceptive framing"—that is, service providers offer consumers an "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."[10] Deceptive framing allows marketers to "present a narrow way of thinking that focuses on only one or a few aspects of a more complex decision problem."[11]

Our contribution here complements the work of behavioral economists and elucidates the more complex decisionmaking problems confronting consumers of "free" exchanges from a transaction cost economics (TCE) approach. We argue that information-intensive companies misuse the term "free" to promote products and services that incur myriad hidden, nonpecuniary costs.[12] Current governance structures allow firms to ignore consumer preferences for privacy and collect valuable information about consumers, all while fostering the perception of a free transaction. The financial incentive for firms to participate in consumer information markets and firms' capacity to do so in today's online environment are not aligned with consumer preferences for privacy. Moreover, the gap be-

8. *See* David Adam Friedman, *Free Offers: A New Look*, 38 N.M. L. REV. 49, 68–69 (2008).

9. *Id.* at 71–81; *see also* Kristina Shampanier et al., *Zero as a Special Price: The True Value of Free Products*, 26 MARKETING SCI. 742, 745–48 (2007) (describing the "zero price effect," a phenomenon in which consumer demand increases for a chocolate when reduced from one cent to free, while demand decreases for an inexpensive but higher-quality alternative when its price is also reduced by one cent). Shampanier et al. suggest that consumers' positive affect for a free good accounts for this shift in demand and that this positive affect may be countered by more careful consumer deliberation. *Id.* at 751.

10. DAVID M. BOUSH ET AL., DECEPTION IN THE MARKETPLACE: THE PSYCHOLOGY OF DECEPTIVE PERSUASION AND CONSUMER SELF-PROTECTION 62–64 (2009).

11. *Id.*

12. Nonpecuniary costs to consumers from engaging in so-called free transactions become pecuniary ex post, when the transacting business or third parties (and an endless number of additional external transacting parties) use the personal information in a way that raises the cost of other, seemingly unrelated transactions for the consumer. For instance, individuals seeking employment may be denied that opportunity on the basis of information discovered on social network accounts, and victims of identity theft expend time and resources to clear their accounts. *See infra* Part I.B; Part I.C.

tween business and consumer interests widens as firms realize financial gains from the collection and use of consumers' personal information and, in turn, impose additional unforeseen transaction costs on consumers. Governance structures that lessen firms' incentives to capitalize on consumers' private information will increase the efficiency of exchanges, both from an individual and from an aggregate market perspective.

At the most basic level, personal information transactions have hidden costs because consumers cannot determine the value of personal information.[13] There is no price list for personal information, in part because the market value of consumer data depends on the business possessing that data and the markets the business participates in with that data.[14] The business can also enhance the value of such data by purchasing more data from third parties and adding it to existing data sets. Although consumers cannot perceive this data enhancement, it quietly infringes on consumers' privacy.[15] These conditions place the burden of transaction costs for purportedly free services on the consumer.

These transaction costs are unnecessary. In fact, any transaction cost that could be reduced or altogether eliminated by an alternative governance structure is an unnecessary cost and therefore a sign of inefficiency. Such inefficiencies rise as advertising and marketing activities become increasingly intrusive, gradually changing the value exchanged by the consumer for the service. Such costs include lock-in, for example. In an extreme form, lock-in is the inability to switch to a competitor once data is integrated into a certain service.[16] Consumers also bear

13. There are circumstances that can allow people to realize the value of their personal information. This can occur, for instance, when people are in the unfortunate position of having to spend time and resources to replace or repair personal records, and recover from the effects of damage to those records. But these circumstances do not occur ex ante, when determining whether to engage in a trade with personal information for any given price. Furthermore, people experiencing ex post costs from the loss or abuse of their personal information can face a serious digital forensic challenge when trying to determine which transactions, transacting parties, or third parties were responsible for the loss or abuse. *See infra* Part I.F.

14. Indeed, the microanalytics of transaction cost economics (TCE) recognize that the same data can be given a different financial value in a different transaction, with a different trading partner. See *infra* Part I.A, regarding assets specific to transactions.

15. *See infra* note 99 and accompanying text.

16. Lack of technology interoperability among online service providers makes the selection of an online service synonymous with the selection of a technology. Lock-in is a condition present when, in economic terms, user externalities raise the cost of switching to a different online service provider. Any perceived cost of switching technologies can give rise to lock-in, including the costs users anticipate with the need to recover or recreate data that would be lost in the move to an alternative service provider. Information-intensive markets, which generate increasing returns for service providers, can also produce an extreme form of lock-in as user externalities reinforce the adoption of existing technologies and services by more users, allowing providers to corner the market and thus making online service markets prone to monopolies. If lock-in is with a monopoly provider, a user will be unable to switch for lack

substantial monitoring costs generated by service providers' willingness to shape user behavior to suit the predilections of other businesses willing to pay for data about consumers.[17] That is, firms often update their products and implement new technologies in ways that typically lead to increased disclosure of consumer data. With each change made by the service provider, users must review modifications of the service providers' privacy policies to try to determine how providers will collect and use this consumer data. Finally, the insecurity of consumer information presents a problematic cost. Investment in security is entirely in the hands of the business—which has little incentive to invest the substantial resources necessary to protect consumer information. Consumers, in turn, have little ability to determine what security is adequate or whether businesses are complying with security rules. Even more problematically, security-breach notification requirements do not apply to most internet businesses.

Regulators are decades behind these problems. The Federal Trade Commission's (FTC) *Guide Concerning Use of the Word "Free"* (FTC Guide) was promulgated in 1971. It addresses consumer confusion over issues such as buy-one-get-one-free offers but does not speak to modern personal information transactions.[18] Still, the application of FTC precedent in free offer cases could support greater government scrutiny of free services.

Reconceptualizing free personal information transactions as having real costs offers benefits to consumers and to competition more generally. Free offers are so salient that consumers tend to try them without serious consideration. They later find themselves locked in to services with changing policies or to services that lack the resources or commitment to address unforeseen circumstances. On the other hand, consumers expect paid services to perform more professionally and to address problems that will invariably arise in this new information economy. Courts are likewise more likely to treat disputes between consumers and businesses more seriously if the consumer paid for the service in question. Currently, consumers are left in a gray zone—what, after all, did they expect? They paid nothing for the service and should expect to get what they paid for.

---

of an alternative. *See* W. Brian Arthur, *Competing Technologies, Increasing Returns, and Lock-in by Historical Events*, 99 ECON. J. 116, 128 (1989).

17. Firms in advertising, for instance, pay differential rates that depend on the amount of information revealed about the consumer. This is the essence of targeted advertising: Third parties pay more for more consumer data because more consumer data allows third parties to generate ads that target a smaller subset of the population, a subset thought more likely to respond to the ads.

18. Guide Concerning Use of the Word "Free" and Similar Representations, 36 Fed. Reg. 21,517 (Nov. 10, 1971).

We proceed by discussing the contribution that TCE brings to understanding free offers. We then turn to existing FTC precedent on free offers, searching for principles that could enable application of TCE approaches to make these transactions more efficient. TCE suggests several interventions, all of which safeguard parties in online transactions by changing the means of governing the flow of personal information.

I. TCE AND FREE OFFERS

In *Free: The Future of a Radical Price*, Chris Anderson delivers a spirited pitch in favor of free offers in the online world.[19] Free offers are possible online because the Internet releases businesses from the ordinary economic rules of the physical world. The physical world suffers from scarcity, making the distribution of goods costly. Conversely, the "near-zero" marginal cost associated with digital distribution makes it possible to share services with many more people with only negligible cost increases.[20] Anderson therefore argues that it makes sense to "round down" and charge consumers nothing for many internet services.[21] Anderson further contends that those that embrace a free model will find a way to be remunerated, for instance, through "freemium" models, in which users that want advanced features or are particularly reliant on a service pay a premium, thus subsidizing the free user base.[22]

In arguing for this model, Anderson recognizes problems in traditional uses of free offers. He recounts a century of free-offer practices that at best involved gimmicks to entice consumers to try products with hidden costs. Invoking a common narrative about Gillette razors and blades, he recounts how Gillette sold its razors at a discount to banks. The banks would then give the razors to consumers free.[23] According to Anderson, Gillette's strategy was to hook the consumer on the razor and recover costs through the sale of expensive replacement blades. Anderson concludes by explaining: "A few billion blades later, this business model is now the foundation of entire industries: Give away the cell phone, sell the monthly plan; make the video game console cheap and sell expen-

19. ANDERSON, *supra* note 3.
20. *See id.* at 3.
21. *See id.* at 242.
22. *See id.* at 26–27.
23. *See id.* at 10–12. We use Anderson's Gillette blades to illustrate this business model, but note that Randal Picker has argued that it is probably apocryphal: "[T]he best available evidence suggests just the opposite [of the free razors and expensive blades model]. Gillette set an initial price of $5 for the razor with an initial set of blades and used every available legal means to ensure that its dealers did not undercut that price." Randal C. Picker, *The Razors-and-Blades Myth(s)*, 78 U. CHI. L. REV. 225, 227 (2011).

sive games; install fancy coffeemakers in offices at no charge so you can sell managers expensive coffee sachets."[24]

These free offers attempt to hide the real costs of goods, thereby making transactions more inefficient. Anderson does not argue that this phenomenon is good for consumers. Rather, he argues that the change to digital goods makes it possible to have free offers without the gimmicks of the physical world: "Twenty-first-century Free is different from twentieth-century Free. Somewhere in the transition from atoms to bits, a phenomenon that we thought we understood was transformed. 'Free' became Free."[25]

But on closer examination, Anderson's digital world of allegedly free services is subject to the same limitations as physical world offers. In addition to similar economic characteristics, free offers are still used widely as an enticement to get consumers to try a product without realizing its costs.[26] Take, for example, the problem of free credit reports. Now that credit reports are accessible through the Internet, the marginal cost of delivering a credit report to a consumer is very low. Nevertheless, a chorus of companies offer free credit reports that are actually expensive monitoring services. The problem was so widespread that the FTC altered the rules governing access to credit reports in 2010 to help consumers identify these fraudulent free offers.[27]

The freemium business model Andersen refers to is popular among industries online. Among them, online games provide examples of free services with hidden costs.[28] By prefacing play with the disclosure of personal identification, the firms that own and operate games can contact and monitor each person in ways that are difficult for the consumer to realize or foresee. This is the case for many games, including Disney's "Club Penguin," an entertainment website for

24. ANDERSON, *supra* note 3, at 11.
25. *Id.* at 3–4.
26. Writing in *Wired* in March 2008, Anderson touted the ability of Comcast to provide consumers with free digital video recorders. Anderson argues that this is possible through "[a]dd[ing] hidden fees[,] . . . [c]harg[ing] a monthly subscription[,] . . . [and] [u]psell[ing] other services." Anderson, *supra* note 6, at 144; *see also* Conor Myhrvold, *Download Me—Saying "Yes" to the Web's Most Dangerous Search Terms*, ARS TECHNICA (June 25, 2013, 6:00 AM), http://arstechnica.com/information-technology/2013/06/download-me-saying-yes-to-the-webs-most-dangerous-search-terms (stating that the author downloaded many free programs in order to determine their impact and reported, "[M]y screensaver and wallpaper downloading spree came with a hidden cost. Adware such as iLivid wreaked havoc on my PC speed and performance despite the fact that I installed several free programs from the search result process that promised the exact opposite. Post install, my computer was effectively unusable").
27. Press Release, Fed. Trade Comm'n, FTC Amends Free Credit Reports Rule to Help Consumers Steer Clear of Free Offers That Cost Money (Feb. 23, 2010), *available at* http://www.ftc.gov/opa/2010/02/facta.shtm.
28. ANDERSON, *supra* note 3, at 149–50.

children. After providing personal information to the firm, consumers of Club Penguin receive limited exposure to basic game features and can see numerous opportunities to enrich their play with additional features. In order to enrich the free service, consumers must buy all sorts of enhancements, such as an upgraded igloo or pets for one's penguin. Disney, like others in the industry, places financial value on the number of consumers it identifies, the personal information they provide, and the extent to which Disney can track consumer activity in order to modify the game and thus increase the rate of conversion of consumers from free players to paying customers.[29]

In short, these examples suggest that digital firms face the same incentive to behave opportunistically as firms selling physical products. In fact, the online world expands opportunities for firms to behave opportunistically by providing a medium through which consumers can sacrifice privacy—a circumstance less likely to arise in offline transactions.

A. A Transaction Cost Economics Approach

The transaction is the basic unit of analysis in TCE.[30] The term transaction refers to the completion of a trade[31] and to the transfer of legal control.[32]

Orthodox economic literature focused on ex ante price determinations, treating price as a critical factor motivating parties to trade goods or services voluntarily.[33] Conversely, TCE examines the circumstances under which the contracts

29. A practice known as the monetization of the game.

30. OLIVER E. WILLIAMSON, THE ECONOMIC INSTITUTIONS OF CAPITALISM: FIRMS, MARKETS, RELATIONAL CONTRACTING 18 (1985) ("The study of the economic institutions of capitalism, as herein proposed, maintains that the transaction is the basic unit of analysis and insists that organization form matters.").

31. 18 OXFORD ENGLISH DICTIONARY 386 (John Simpson & Edmund Weiner eds., 2d ed. 1989).

32. *See* 1 JOHN R. COMMONS, INSTITUTIONAL ECONOMICS: ITS PLACE IN POLITICAL ECONOMY 4 (Univ. of Wis. Press 1959) (1934) ("I was trying to find what could be the unit of investigation which would include these three constituents of conflict, dependence, and order. After many years I worked out the conclusion that they were found combined together only in the formula of a *transaction*, as against the older concepts of commodities, labor, desires, individuals, and exchange. So I made the transaction the ultimate unit of economic investigation, a unit of transfer of legal control. This unit enabled me to classify all the economic decisions of the courts and arbitration tribunals under the variable economic factors involved in transactions as they actually are made.").

33. Consider classical or neoclassical economic theory exemplified by the Chicago School in the post–World War II period. With regard to neoclassical economic theory, see Melvin W. Reder, *Chicago Economics: Permanence and Change*, 20 J. ECON. LITERATURE 1, 13 (1982), stating that, "Chicago economists tend strongly to appraise their own research and that of others by a standard which requires (*inter alia*) that the findings of empirical research be consistent with the implications of standard price theory." *See also* MELVIN W. REDER, ECONOMICS: THE CULTURE OF A CONTROVERSIAL SCIENCE 43–65 (1999). With

governing transactions prove incomplete, requiring parties to adapt ex post to unforeseen circumstances. Oliver Williamson explains this distinction:

> Transaction costs of *ex ante* and *ex post* types are usefully distinguished. The first are the costs of drafting, negotiating, and safeguarding an agreement. This can be done with a great deal of care, in which case a complex document is drafted in which numerous contingencies are recognized, and appropriate adaptations by the parties are stipulated and agreed to in advance. Or the document can be very incomplete, the gaps to be filled in by the parties as the contingencies arise.[34]

Irrespective of competitive ex ante prices, TCE theory recognizes that costs are generated in the formation of contracts, are ongoing with the execution of contracts, and are set apart from—or exist in addition to—the cost of production.[35] This theory is therefore particularly useful in cases of divergence between price and cost, as is likely to occur when the price of a good appears to be zero.[36] The theory explains, with reference to costs as they accumulate and the mediating roles of contracts and other governance structures, how human behavior leads to inefficient outcomes.

The behavioral assumptions of TCE center on bounded rationality and opportunism. Williamson's message is that people are rational but they cannot anticipate everything that will happen.[37] People are opportunistic in that they may, but do not always, take advantage of one another. These assumptions allow for

---

regard to classical economic theory, see, for example, ADAM SMITH, AN INQUIRY INTO THE NATURE AND CAUSES OF THE WEALTH OF NATIONS (Edwin Cannan ed., The Modern Library 1937) (1776), which theorizes that market expansion flowing from the division of labor, the investment of capital in domestic industry, and the self-interested exchange of surplus goods in competitive market conditions has generally benefitted the public good, except when such activities lead to conspiracies to raise prices and goods prone to monopoly.

34. WILLIAMSON, *supra* note 30, at 20.

35. R. H. Coase, *1991 Nobel Lecture: The Institutional Structure of Production*, *in* THE NATURE OF THE FIRM: ORIGINS, EVOLUTION, AND DEVELOPMENT 227, 230 (Oliver E. Williamson & Sidney G. Winter eds., 1991) ("How did one reconcile the views expressed by economists on the role of the pricing system . . . with the existence of management and of these apparently planned societies, firms, operating within our own economy? I found the answer . . . . It was to realise that there were costs of using the price mechanism. What the prices are have to be discovered. There are negotiations to be undertaken, contracts have to be drawn up, inspections have to be made, arrangements have to be made to settle disputes, and so on. These costs have come to be known as transaction costs.").

36. For an explanation of the relevance of TCE theory with and without the neoclassical ideal of prices equal to production cost, see Jan Whittington & Chris Jay Hoofnagle, *Unpacking Privacy's Price*, 90 N.C. L. REV. 1327, 1331 n.9 (2012).

37. *See* Herbert A. Simon, *Rationality in Psychology and Economics*, 59 J. BUS. S209, S210–11 (1986).

the fact that human actors are confronted with the need to adapt to "unanticipated disturbances that arise by reason of gaps, errors and omissions in the original contract" and for the fact that strategic behavior may lead to costly contractual breakdowns.[38] Parties may expect performance from one another in accordance with incentives, such as payoffs and punishments, supplied in the contract or other explicit and implicit institutions supporting the exchange.[39] Still, each party is challenged to learn and verify the performance of the other ex post, in fulfillment of the contract.[40] Given limited foresight, people may be able to plan for their interests only under the simplest of contracting conditions. The combined assumptions of strategic behavior and bounded rationality leave all complex contracts unavoidably incomplete.[41]

As these behavioral assumptions suggest, transaction cost economics focuses on the fact that the cost of transacting can rise, uneconomically, after a contract is signed. As Williamson also says:

> *Ex post* costs of contracting take several forms. These include (1) the maladaptation costs incurred when transactions drift out of alignment . . . , (2) the haggling costs incurred if bilateral efforts are made to correct *ex post* misalignments, (3) the setup and running costs associated with the governance structures (often not the courts) to which disputes are referred, and (4) the bonding costs of effecting secure commitments.[42]

Maladaptation refers to the inability of the parties to adapt efficiently to changing circumstances as a transaction proceeds.[43] Alignment refers to the

38. Oliver E. Williamson, *The Theory of the Firm as Governance Structure: From Choice to Contract*, 16 J. ECON. PERSP. 171, 174 (2002).

39. *See* DOUGLASS C. NORTH, UNDERSTANDING THE PROCESS OF ECONOMIC CHANGE 18 (2005) ("Historically, institutional change has altered the pay-off to cooperative activity (the legal enforcement of contracts, for example), increased the incentive to invent and innovate (patent laws), altered the pay-off to investing in human capital (the development of institutions to integrate the distributed knowledge of complex economies), and lowered transaction costs in markets (the creation of a judicial system that lowers the costs of contract enforcement).").

40. Oliver E. Williamson, *The Lens of Contract: Private Ordering*, 92 AM. ECON. REV. 438, 440 (2002) ("Not only are contracts incomplete by reason of bounded rationality, but the readiness with which common knowledge of payoffs is invoked is deeply problematic. Relatedly, the combination of bounded rationality and opportunism is responsible for nonverifiability.").

41. *Id.* ("[S]trategic behavior that had previously been ignored or denied becomes central . . . . Bounded rationality . . . is the cognitive assumption. . . . Viewed . . . from the lens of contract, the chief lesson is that all complex contracts are unavoidably incomplete.").

42. WILLIAMSON, *supra* note 30, at 21.

43. Oliver E. Williamson, *Comparative Economic Organization: The Analysis of Discrete Structural Alternatives*, 36 ADMIN. SCI. Q. 269, 278–79 (1991) ("I submit that adaptability is the

game-theoretic balancing of interests and incentives the parties engage in as they craft and carry out their agreements. Misalignment is the failure of either the parties or the institutional structure to strike a proper balance of interests and incentives.[44] The result is inefficiency, reflected in elevated bargaining costs, disputes, or other factors that impede the cost-efficient execution of the transaction.[45] Thus, misalignment suggests that the contracts used to govern exchange are more expensive to execute than they should be or, importantly, that the con-

central problem of economic organization . . . . [Neoclassical spontaneous adaptations of consumers and producers responding to price changes to maximize utility and profits] are those for which prices serve as sufficient statistics. . . . Some disturbances, however, require coordinated responses, lest the individual parts operate at cross-purposes or otherwise suboptimize. Failures of coordination may arise because autonomous parties read and react to signals differently, even though their purpose is to achieve a timely and compatible combined response. . . . Although, in principle, convergent expectations could be realized by asking one party to read and interpret the signals for all, the lead party may behave strategically—by distorting information or disclosing it in an incomplete and selective fashion. More generally, parties that bear a long-term bilateral dependency relation to one another must recognize that incomplete contracts require gapfilling and sometimes get out of alignment. Although it is always in the collective interest of autonomous parties to fill gaps, correct errors, and effect efficient realignments, it is also the case that the distribution of the resulting gains is indeterminate. Self-interested bargaining predictably obtains. Such bargaining is itself costly. The main costs, however, are that transactions are maladapted to the environment during the bargaining interval. Also, the prospect of ex post bargaining invites ex ante pre-positioning of an inefficient kind."). For an explanation of ex post maladaptation, see WILLIAMSON, *supra* note 30, at 21 ("Thus suppose that a contract stipulates x but, with the benefit of hindsight [or in the fullness of knowledge], the parties discern that they should have done y. Getting from x to y, however, may not be easy. The manner in which associated benefits are divided is apt to give rise to intensive, self-interested bargaining. Complex, strategic behavior may be elicited. Referring the dispute to another forum may help, but that will vary with the circumstances. An incomplete adaptation will be realized if, as a consequence of efforts of both kinds, the parties move not to y but to y'.").

44. *See* Masahiko Aoki, *Managerialism Revisited in the Light of Bargaining-Game Theory*, 1 INT'L J. INDUS. ORG. 1, 5 (1983) (defining misalignment in the context of economics). Williamson defines alignment according to the game-theoretic concept (developed by Aoki) of parties undergoing pervasive ex post bargaining over more than price, resulting in a shifting contract curve—for management and employees in firms, a curve in the space of vectors for wages, but also numerous other managerial policies. Wages, in this conception, are one of several factors employees and managers bargain for in contractual arrangements. *See* WILLIAMSON, *supra* note 30, at 29. Similarly, consumers and businesses online are interested in more than the price of the bargain.

45. *See* WILLIAMSON, *supra* note 30, at 29. Importantly, TCE theory maintains that bargaining ex post is just as relevant, if not more so, than bargaining ex ante. As Williamson says, "it is impossible to concentrate all of the relevant bargaining action at the *ex ante* contracting stage. Instead, *bargaining is pervasive*—on which account the institutions of private ordering and the study of contracting in its entirety take on critical economic significance." *Id.*

tracts in question do not adequately safeguard the interests of one or more parties to the exchange.[46]

TCE hypothesizes that efficiency arises from aligning transactions with governance structures to reduce the cost of transacting.[47] Transactions have identifiable attributes, as do contracts and related forms of governance. Attributes of transactions matter for their potential to explain why contracts and related governance structures may or may not allow the parties to efficiently adapt to change ex post, after the contract is signed. Meaningful attributes include uncertainty, complexity, the numbers of competitors, the presence of high- versus low-powered incentives, the recurring nature or frequency of an exchange, and the existence of first-mover advantages.[48] Attributes also include information that is costly to discern, difficult to display, or asymmetrically distributed between the parties. Individually or in combination, these attributes pose hazards to transacting parties that may or may not be accounted for in the contracts that govern exchange.

In general, Williamson has found that more complex forms of contract are reserved for transactions that are more hazardous.[49] In particular, concern for ex post bargaining orients the theory and research toward the factors that give rise to bilateral dependency between transacting parties. Parties can bring, acquire, or develop assets—such as experience, information, or investments—that would lose value in alternative transactions or with alternative trading partners. Williamson coined the term "asset specificity" to describe the degree to which an as-

46. Ian R. Macneil, *The Many Futures of Contracts*, 47 S. CAL. L. REV. 691, 726 (1974). The idea that excessive ex ante and ex post costs can result from misaligned incentives between parties to an exchange becomes realistic when considering the "inherently fragmentary nature" of the promise embodied in contracts. *Id.* at 726–35. The pervasiveness of incomplete contracts, coupled with the extent to which the incentives of the parties to engage in the exchange differ, establish the context for pervasive and therefore costly ex post bargaining.

47. Williamson, *supra* note 38, at 175 ("[E]ach mode of governance possesses distinctive strengths and weaknesses. . . . [T]he challenge is to enunciate the relevant attributes for describing governance structures and thereafter to align different kinds of transactions with discrete modes of governance in an economizing way."); *see also* Williamson, *supra* note 43, at 277 ("The discriminating alignment hypothesis to which transaction cost economics owes much of its predictive content holds that transactions, which differ in their attributes, are aligned with governance structures, which differ in their costs and competencies, in a discriminating (mainly, transaction-cost economizing) way.").

48. *See* OLIVER E. WILLIAMSON, MARKETS AND HIERARCHIES: ANALYSIS AND ANTITRUST IMPLICATIONS: A STUDY IN THE ECONOMICS OF INTERNAL ORGANIZATION 21, 28 (1975).

49. Williamson, *supra* note 40, at 441 ("[M]ore complex modes of governance are reserved for more hazardous transactions.").

set loses productive value if redeployed to alternative uses and users.[50] Asset specificity creates bilateral dependent trading relationships, and the parties therefore find themselves susceptible to the same contractual hazards that arise in bilateral monopoly.[51] That is, buyers find it cost-prohibitive to turn to alternative sources of supply, and sellers cannot redeploy the same assets to alternative uses or users without incurring a loss.[52] As such, the parties become poised for intensive, self-interested bargaining for maximum gain over incremental ex post change. The asset may be specific to only one of the transacting parties. Regardless, the greater the value of the transaction-specific asset, the more the pairwise identity of the parties matters.[53] TCE thus predicts rising costs, unless these hazards are relieved by incentives, administrative controls, or other safeguards.[54] Notably, such hazards encompass not only moral hazards but also any attributes that engender excessive expenditures or disputes, especially if an alternative form of governance could alleviate the opportunistic behaviors and bounded rationality that lead to the expenditures and disputes.[55] Remedies, whether contractual or part of a larger institutional apparatus, align and safeguard the interests of the parties, thereby reducing the overall cost of transacting.

In transaction cost economic analysis, the economy of alternative structures of governance may be measured, ceteris paribus, with reference to the sum of

50. Williamson, *supra* note 43, at 281.

51. Benjamin Klein et al., *Vertical Integration, Appropriable Rents, and the Competitive Contracting Process*, 21 J.L. & ECON. 297, 299 (1978) ("There may be many potential suppliers of a particular asset to a particular user but once the investment in the asset is made, the asset may be so specialized to a particular user that monopoly or monopsony market power, or both, is created.").

52. *See generally id.* (explaining why investments in specialized assets with appropriable quasirents give rise to opportunistic behavior by the current trading partner, who will appropriate quasirents unless relieved by vertical integration or any longterm contract that gives the parties joint ownership of the specialized assets). Quasirent may be the value of the asset to one partner beyond the value to others and/or the cost of moving the asset or switching in trade from one partner to another. *See* Williamson, *supra* note 38, at 176.

53. *See* Williamson, *supra* note 43, at 282 ("Although asset specificity can take a variety of forms, the common consequence is this: a condition of bilateral dependency builds up as asset specificity deepens. The ideal transaction in law and economics—whereby the identities of the buyers and sellers is irrelevant—obtains when asset specificity is zero. Identity matters as investments in transaction-specific assets increase, since such specialized assets lose productive value when redeployed to best alternative uses and by best alternative users."). For an explanation of the role of personal information as an asset unique to consumers and traded with social-networking services, see Whittington & Hoofnagle, *supra* note 36, at 1349 & n.73.

54. *See* Williamson, *supra* note 38, at 180–81.

55. For several examples of contractual hazards, including moral hazard, in the context of tangible goods and the remedy of hazards through vertical integration, see Oliver E. Williamson, *The Vertical Integration of Production: Market Failure Considerations,* 61 AM. ECON. REV. 112, 114–22 (1971).

production and transaction costs.[56] Priced at zero, free online products and services may give people the impression that firms do not need to recoup the cost of producing the goods they consume. This is not the case.

B. Production Costs in Free Offers

Anderson's claims may lead people to believe that online environments change the economic fundamentals for firms, but firms online are like firms offline—both spend money to generate their products and both must recoup costs to survive. Free offers from the firm to the consumer exacerbate the need for ex post cost recovery. This is true in the physical world and true online. As a result, truly free offers do not come along as often as we would like.

Free offers in the physical world appear to be gimmicks because we can plainly see that the products have costs associated with them and can reasonably assume, despite bounded rationality and information asymmetry that firms are going to try ex post to recoup their expenses in some way. Whether we accept a free sample of ice cream from a truck parked on our university campus or pull out and apply a free sample of perfume from the fold of a magazine, we all share the impression that a firm spent money producing these tangible products and that the same firm will have to recoup the incremental cost of the sample we enjoy. Bounded rationality leaves us with limited knowledge of the actual costs of production and distribution and the means by which the firm will attempt to recoup costs. Information asymmetry suggests that this knowledge, held by the firm, is not shared with consumers. Yet, the tangible object is proof that the firm has a financial incentive to take action, perhaps opportunistically. We can reasonably assume that the firm will make the attempt and either successfully recoup its investment or suffer a loss.

Anderson's claim that digital free offers can truly be free hinges on a two-fold premise: (1) Firms do not experience marginal costs when distributing free products and (2) firms do not recoup production costs from consumers of free products. Unfortunately for consumers, the economics of information provide only tentative, qualified support for the first premise and no support at all for the second.

56. WILLIAMSON, *supra* note 30, at 22 ("Holding the nature of the good or service to be delivered constant, economizing takes place with reference to the sum of production and transaction costs, whence tradeoffs in this respect must be recognized. . . . [T]he design of the good or service to be delivered is a decision variable that influences demand as well as costs of both kinds, whence design is appropriately made part of the calculus.").

The marginal cost of distributing digital products has trended downward with the decreasing cost of computing power, storage capacity, and transmission bandwidth. Evidence of the staggering economic effects of these three technological advancements—for example, Moore's law[57] and its equivalents in transmission and storage—is omnipresent. Hulu and Netflix, for example, epitomize the economic distance recently traveled in these three fields—just twenty years ago business models relying on the direct-to-consumer digital transmission of movies were inconceivable. Nonetheless, these technologies are not available free of charge. Every cyberbusiness model relies on a physical system, including bricks and mortar to house racks of servers and miles of cable, all plugged into the same physical infrastructures that keep the lights on and the air cool in our homes and offices.[58]

Cyberphysical systems cost money to develop, maintain, and operate. If they did not, cloud computing services would be free. The cost of cloud computing services varies by provider and according to the uses of the service. Priced by the instance, Microsoft, Amazon, and Google, for example, charge separate metered rates for timed and scaled use of central processing units, storage, and bandwidth of transmission.[59] Firms online compare these rates to the cost of providing their own processing and storage, and, potentially, to the cost of providing their own transmission services, though transmission services tend to remain with telecommunications firms and similar carriers.[60] Whether distributed through a cloud provider or a firm's own private data center, the delivery of online products to consumers "free," does cause firms to incur these costs.

57. Moore's law predicts that the complexity of integrated circuits will double every two years, thus pointing to dramatic increases in processing power. George E. Moore, *Progress in Digital Integrated Electronics*, *in* INTERNATIONAL ELECTRON DEVICES MEETING TECHNICAL DIGEST 11 (1975).

58. For an overview of the physical infrastructure of the Internet, see generally ANDREW BLUM, TUBES: A JOURNEY TO THE CENTER OF THE INTERNET (2012).

59. *See* Dion Hinchcliffe, *What Does Cloud Computing Actually Cost? An Analysis of the Top Vendors*, EBIZQ (Aug. 22, 2009, 12:03 PM), http://www.ebizq.net/blogs/enterprise/2009/08/what_does_cloud_computing_actu.php.

60. The transmission of information is usually the purview of telecommunications firms, whose business is the ownership and operation of fiberoptic, satellite, cellular, cable, and other such networks. For transmission, even the largest information-intensive industries (Amazon, Microsoft, and Google) contract with telecommunications firms (for example, AT&T and Comcast) to transmit information from place to place (for example, from the cloud to the user). *See* Shalini Ramachandran & Drew Fitzgerald, *For Web Firms, Faster Access Comes at a Price*, WALL ST. J., June 20, 2013, http://online.wsj.com/article_email/SB10001424127887323836504578553170167992666-lMyQjAxMTAzMDEwOTExNDkyWj.html ("Hoping to speed traffic through an increasingly congested Internet, several big Web companies including Google Inc., Microsoft Corp. and Facebook Inc. are paying major broadband providers for connections to get faster and smoother access to their networks, say people familiar with the matter.").

The marginal costs that firms incur from serving each additional consumer may be very small—perhaps, as Anderson suggests, "too cheap to matter"[61]—or substantial, depending on the amount of time and capacity devoted to the delivery of digital goods to each consumer. When the cost of an instance hour to run Windows in the cloud is twelve cents and projected to decrease further in the months ahead, Anderson may seem to be correct. History demonstrates, however, that infrastructure costs do not follow a linear trend. Investments in capacity have at times outpaced consumption demands, leading investors to relax the pace of growth. If investments in capacity subside long enough, a sudden, unexpected spike in demand can then lead to congestion. Congestion can occur when demand for processing power or transmission capacity exceeds supply. Consumers may notice evidence of congestion in the form of slower delivery speeds or reduced content quality. The behavior of firms may also reveal the presence of congestion: Firms may impose caps on the bandwidth of other firms, charge additional fees, or increase prices based available bandwidth or preferred delivery speed. Notably, differentiated pricing on a network is not possible without either congestion, a monopoly in the provision of service to the customer, or both.

Distribution costs for most online products may appear low but production costs are and will remain high. Computer programming is one of the most lucrative lines of employment available. For instance, in 2011, the average U.S. salary was estimated at $45,230.[62] In the U.S. game industry, however, the average computer programmer received $92,962, with artists and animators averaging almost as much—or $75,780.[63] The lowest paid employees were those in quality assurance who, for example, test the games; such employees averaged $47,910 annually.[64] Regardless of whether one calculates information product costs by adding up actual payroll costs or by applying market rates to the time spent by programmers not directly paid for their time, the costs of production quickly become significant.

Although the cost to produce a game and the cost to acquire the producers will differ, online games often cost millions of dollars to produce. To give an example, Disney paid $350 million outright for the purchase of Club Penguin and offered another $350 million contingent on the product's performance between

61. ANDERSON, *supra* note 3, at 90.

62. *May 2011 National Occupational Employment and Wage Estimates: United States*, BUREAU OF LAB. STAT., http://www.bls.gov/oes/2011/may/oes_nat.htm (last updated Mar. 29, 2012).

63. *Game Developer Reveals 2011 Game Industry Salary Survey Results*, GAMASUTRA (Apr. 2, 2012), http://gamasutra.com/view/news/167355/Game_Developer_reveals_2011_Game_Industry_Salary_Survey_results.php.

64. *Id.*

2007 and 2009.[65] From Disney's point of view, the already-functioning and popular game was worth the multimillion-dollar price tag because it allowed Disney to bypass the cost and risk of attempting to develop the same asset and customer base themselves. Disney may also have considered the value Club Penguin might add to Disney's other lines of business, such as merchandising, branding, and theme park revenues. Undoubtedly, however, the company examined the number of active consumers (users, in industry parlance), the cost to acquire each user (loss leader for a free player), the conversion rate (from free to paying player), the lifetime value of each paying user, the average revenue per user, and the average revenue per paying user.[66] Most certainly, Disney, like the purchasers or developers of any freemium business, would have examined these clear and legitimate metrics as they considered how to recover their production or purchase costs from current and future consumers.

Furthermore, today's production costs for online products are rarely one-time costs. Before digital distribution, games were completed, burned onto disks, shipped off to retailers, and sold on shelves. With digital distribution and, specifically, in models of games with "free" offers, production costs are ongoing and include expenditures for customer support, content and feature updates, and marketing, in addition to all of the other costs that come with cyberphysical facilities.[67] In fact, ongoing production costs are attached to all forms of ongoing software services. Wikipedia and Craigslist are examples of organizations touted as successful and beneficial because they attempt to keep ongoing costs down and pass on the economic benefits of internet use to consumers. But even Wikipedia and Craigslist employ people and rack up expenditures to pay for computing power, storage, and transmission, and therefore accrue costs that must be recouped, whether through donations, the collection of a percentage of sales, or some other means.[68]

65. Merissa Marr & Peter Sanders, *Disney Buys Kids' Social-Network Site*, WALL ST. J., Aug. 2, 2007, http://online.wsj.com/article/SB118599768804085026.html.

66. *See* CASUAL GAMES ASS'N, MOBILE GAMING: CASUAL GAMES SECTOR REPORT 4, 7, 8 (2012), *available at* http://dl.dropbox.com/u/3698805/research/2012_CGA_MobileSector.pdf.

67. CASUAL GAMES ASS'N, SOCIAL NETWORK GAMES 2012: CASUAL GAMES SECTOR REPORT 2 (2012) ("Social Network Games require careful user research, economic tuning, and technical demands not typically encountered during casual game development. Successful social network content providers must also deal with the additional complexity of maintaining and evolving a live service."); *see also supra* notes 46–49 and accompanying text.

68. "Craigslist makes money only through a handful of revenue streams. It charges a $25 fee to post a job listing in six major U.S. cities. It charges $75 for a job listing in the San Francisco area. Last, the company charges a $10 fee to list an apartment rental in New York. The revenues generated from these fees cover only the operating expenses of Craigslist." Keith Patrick, *How Craigslist Makes Money*, CHRON, http://smallbusiness.chron.com/craigslist-money-27287.html (last visited Dec. 19, 2013). Wikipedia is operated by the not for profit

Consumers have become accustomed to receiving a great variety of free services online. As long as the need to recoup production costs still exists, the tendency to offer these products or services free to consumers increases the risk that each firm will find itself unable to recoup costs directly from consumers.

C. When Free Offers Are Truly Free

Many products are available online; some convey information while others are more easily understood through measures of our attention. Online products allow us to communicate in social networks, meet each other, and work together. We also use online venues to consume and produce information: We generate and receive news, generate and conduct research, and contribute to and view consumer reports. And we play and produce games, upload and view video and film, and preview as well as purchase songs, books, and other merchandise. Each firm hosting or producing these services bears risk because, at some point in time, in relation to the cash flow of the firm, the firm will have to recoup the costs of generating or providing these products and services—a risk that is heightened by consumers' expectations that firms offer these benefits free.

It is possible for consumers to effectively use free products without incurring a cost, monetary or otherwise.[69] For example, consumers may be able to play free trials of games by logging in as guests. Banner ads on websites arguably convey no costs if they are easy enough to ignore.[70] In these cases, the free offer ex ante may remain free ex post. In these situations, loss leaders can be lost, and free riders can ride free.

The personal information consumers commonly provide to online firms, however, like a name and email address, allows the firm to identify, contact, and track the consumer online—and perhaps even locate the consumer in the physical

Wikimedia Foundation, which is supported by donations. WIKIMEDIA FOUND., https://wikimediafoundation.org/wiki/Home (last updated July 29, 2013).

69. For example, a nonmonetary cost would involve the consumer and firm trading one digitized asset for another, as occurs when a consumer trades the contents of their online profile from a social-networking site for a downloadable free game or product by simply linking the two accounts to each other. Costs experienced by the consumer are more fully addressed in Part I.E and I.F of this Article.

70. The more ads are targeted and tailored with personal information, the more difficult they become to ignore. There is also the issue of service latency, which is increased—sometimes dramatically—by advertising and tracking services. *See generally* EVIDON GLOBAL TRACKER REPORT (2013), *available at* http://www.evidon.com/research.

world. To provide this information to the firm in exchange for a free product or service is to engage in trade, even if the trade occurs without a price.[71]

One's personal information is, in the transaction cost economic sense, an asset unique to each consumer; consumers are therefore in bilateral dependent trading relations with the firms that obtain this information.[72] Subject to bounded rationality and profound asymmetries of information, the consumer bears the burdens created by the firm's management of this personal information, burdens that range from the annoying practices of targeted marketing to alarming instances of identity theft and other crimes. In some cases, the firm transfers costs to the consumer, as occurs when personal information is used for marketing practices that cause the consumer to spend more time, effort, or funds to reduce their impact. In other cases, the firm transfers risks to the consumer, as occurs when the data held by firms is vulnerable to breach and distributed or sold to third parties who have no interest in or obligation to meet consumer privacy preferences.

Free online products remain free only if the firm does not transfer the cost or risk of recouping cost to the consumer. When a consumer can sample a product without the obligation to disclose personal information to the firm and without concern that the firm will track the consumer's behavior, then the interests of the firm are more closely aligned with ex ante interests of consumers.[73] Under these circumstances, the chances of consumers experiencing ex post transaction costs from the contractual hazards created by the transfer of personal information are diminished. Yet, the firm still gains an essential benefit: The consumer samples or is introduced to the firm's products. The firm's investment may then be rewarded if the consumer of a free product enjoys the product and tells others about it. When consumers spread the word about a product they provide mar-

71. *See* SMITH, *supra* note 33, at 33 ("At all times and places that is dear which it is difficult to come at, or which it costs much labour to acquire; and that cheap which is to be had easily, or with very little labour. Labour alone, therefore, never varying in its own value, is alone the ultimate and real standard by which the value of all commodities can at all times and places be estimated and compared. It is their real price; money is their nominal price only."). The concept of trade in personal information is addressed more fully in Part I.F of this Article.

72. *See* Whittington & Hoofnagle, *supra* note 36, at 1348–54 (explaining that personal information is an asset specific to each consumer and therefore an asset that raises asset specificity in transactions between consumers and social-networking services online, bringing the consumer and online service provider into bilateral dependent trading relations). Subsequently, in the case of personal digital assets, the inability to take one's information back from a trading partner locks the person identified or described by that information into bilateral dependent relations as long as the firm retains that personal information.

73. *See, e.g.*, JOSEPH TUROW ET AL., CONTRARY TO WHAT MARKETERS SAY, AMERICANS REJECT TAILORED ADVERTISING AND THREE ACTIVITIES THAT ENABLE IT (2009), *available at* http://ssrn.com/paper=1478214 (finding strong consumer support for privacy protections).

keting for the firm, potentially increasing the value of the brand as well as the asset. Better yet, the sample may induce the consumer to pay the premium—the above-average cost paid by a portion of consumers in freemium business models—that allows the firm to cross-subsidize other consumers' use and recoup at or in excess of its expenditures. Eventually someone will have to pay or the firm will go out of business.

It is all too common, however, for online firms to transfer cost and risk to the consumer by amassing, selling, or otherwise trading personal information collected from consumers.

D. When Free Offers Are Not Free

Many online business models obligate consumers to divulge personal information when sampling a free offer, often going to great lengths to track and monitor consumers' online behavior in the hope of learning how to convert free riders into paying customers, or to deliver targeted, more lucrative forms of advertising. For some firms, the collection and monetization of data from and about consumers in exchange for purportedly free services is the core business proposition. These business models demonstrate the extent to which firms value, just as any other asset, the personal information they collect from or about each consumer, especially when the consumer is a free rider.

So-called freemium businesses often have a digital or tangible product to sell and need the means to allow consumers to sample the product. In ways that are awkward if not impossible in the physical world, however, firms engaging customers with free introductory offers online often obligate the consumer to provide personal information in exchange for access to the free trial. Disney's Club Penguin policies are among the easiest to understand. The firm explains that "if personal information is not provided to us, then Club Penguin may not agree to Club Penguin membership."[74] When consumers want to try Disney's Club Penguin game, they must provide a name and email address, which is then authenticated when the consumer responds to the invitation to register sent to that email address. This is a game intended for small children, so the email invitation is addressed to the parents of the child and comes complete with the privacy policy. In the process of registration and play, the consumer's Internet Protocol (IP) addresses are made available to the firm, along with any data the firm chooses to collect while monitoring the player's choices and chats. Moreo-

74. *Privacy Policy*, DISNEY CLUB PENGUIN, http://www.clubpenguin.com/privacy-policy/en (last updated Nov. 1, 2013).

ver, cookies are placed on the player's computers. The policy explains that the firm "operate[s] globally and may transfer your personal information to individual companies of The Walt Disney Family of Companies or third parties in locations around the world for the purposes described in this privacy policy."[75]

Club Penguin offers two modes of play, one that provides users "ultra-safe" chat in the form of premade images or phrases, and another which allows the user to type in his or her own messages. Besides chat, the play function involves coloring, clothing, and moving your penguin from place to place, and playing minigames embedded in the game environments. The firm applies filters and employs people to monitor players, with the justification that monitoring allows the firm to intervene selectively to delete messages or block accounts and thus prevent "inappropriate conduct." In the kind of language a parent might find in a message from a school principal, the policy urges parents to "[p]lease be sure to include your email address and a telephone number where we can reach you."[76] The policy also explains that the firm collects information in order to make their sites "more interesting and useful to you" and "for various purposes related to our business."[77] This array of services is available free of charge, if one is willing to disclose what the firm has determined to be no more personal information than is "reasonably necessary" for this online activity.

Disney's policy hints at what has become a flourishing set of practices firms engage in for the purpose of amassing, studying, and acting on personal information from consumers. A vast array of companies is now devoted to tracking people online, often on free sites, in order to target individuals for advertisements, measure the efficacy of advertising, or audit the delivery of advertising.[78] In 2010, the *Wall Street Journal* focused a series of articles on this monitoring, finding that the "nation's 50 top websites on average installed 64 pieces of tracking technology onto the computers of visitors, usually with no warning."[79]

Games that take advantage of the demand-side economies of social networks amass big databases organized into dashboards. This information allows game producers to then fine-tune content in order to lower the cost of loss leaders, raise rates of conversion, reduce the time it takes to convert free riders into paying customers, and maximize the lifetime value of each customer, thereby raising average revenue per user and paying user. Following, literally, every digi-

75. *Id.*
76. *Id.*
77. *Id.*
78. JOSHUA GOMEZ ET AL., KNOW PRIVACY (2009), http://www.knowprivacy.org/report/KnowPrivacy_Final_Report.pdf.
79. Julia Angwin, *The Web's New Gold Mine: Your Secrets*, WALL ST. J., July 30, 2010, http://online.wsj.com/article/SB10001424052748703940904575395073512989404.html.

tal step taken by each consumer, firms pepper email inboxes to advertise to and retain each consumer, even when the consumer continues to free ride and the business proposition consists of nothing more than the ability to continue amassing potentially useful data by tracking the behavior of the consumer. In 2012, approximately eighty-million people in the United States played social network games. About 60 percent of "freemium" game revenue came from the sale of "virtual goods," but these purchases were made by only 5 percent or fewer of the players.[80] And of that small percentage of paying users, 15 percent, affectionately termed "whales" by industry insiders, accounted for more than 50 percent of a typical game's revenue.[81]

Firms with online games offer free trials of products they would like to sell to consumers, but some socially networked services would not have a product to sell if not for the personal information that consumers produce. For example, Facebook's product is access to individuals who have entered personal information. LinkedIn is similar, but with a business orientation. YouTube is distinguished by hosting the videos consumers create and upload. Google offers a free search service in exchange for the provision of information—personal and otherwise—that is used to find resources on the Internet and to target advertising. These products are therefore compilations of information created by consumers of free services who spent time attending to their websites, profiles, photos, videos, and social communications. For these types of businesses and the third parties they market to, the collection and sale of personal information about consumers is the main business proposition.

E. Contractual Hazards in Free Offers

Several actions on the part of firms present contractual hazards that become sources of transaction costs for consumers of free online offers. Firms can and do treat personal information as something the firm (1) intends, ex ante, to collect and sell; (2) collects and holds on to because the promise of access to the information attracts third parties to enter into monetized agreements with the firm; (3) collects and holds on to, like insurance they will monetize if and when they do not recoup costs by other means; and/or (4) collects and holds on to, and, after the business has failed, liquidators will sell to recoup costs.

80. *See* CASUAL GAMES ASS'N, *supra* note 67, at 3. ("A freemium game is free to play, but players pay to purchase optional upgrades, extra content, virtual goods, and other premium features. Only 1%-5% of social game's audience purchase virtual items, but this source dominates most games' revenue streams.").

81. *Id.* at 2.

Firms collect and sell personal information when they, for instance, develop applications that scrape, that is, collect information from the profiles of users on existing social-networking platforms. Russia-based SMS Services created a free application called "Girls Around Me" which, as the name implies, scrapes profiles from Facebook and locations from Foursquare in order to provide real-time locational and other information about girls (women and men, actually) in the vicinity of the consumer, without the target's knowledge.[82] Each girl found by the application has ostensibly allowed Facebook and Foursquare to collect and reveal her location and profile to the public, including photos. The application then provides this information, on demand, to the consumer's mobile device. It may be worth noting, at this point, that privacy protections for children extend up through only the age of twelve. Thus, girls thirteen years or older were visible through the features of this application. Apple was disenchanted enough with the potential consequences of the use of this application to pull it from their App Store, and Foursquare cut off the application's access to its data. In a lengthy statement to the *Wall Street Journal*,[83] Russian firm i-Free Innovations—perhaps a pseudonym for, or an investor in, SMS Services[84]—defended the legitimacy of the product, claiming that they followed all existing policies governing personal information on Facebook and Foursquare.[85] Though the model for earning revenue from

82. John Brownlee, *This Creepy App Isn't Just Stalking Women Without Their Knowledge, It's a Wake-up Call About Facebook Privacy [Update]*, CULT OF MAC (Mar. 30, 2012, 3:20 PM), http://www.cultofmac.com/157641/this-creepy-app-isnt-just-stalking-women-without-their-knowledge-its-a-wake-up-call-about-facebook-privacy; Ian Paul, *Girls Around Me App Voluntarily Pulled After Privacy Backlash*, TECHHIVE (Apr. 2, 2012, 5:25 AM), http://www.techhive.com/article/252996/girls_around_me_app_voluntarily_pulled_after_privacy_backlash.html ("Brownlee reports he was able to use Girls Around Me to find one person he found attractive (for the purposes of the article), and was then able to discover the woman's full name, age and birthday, current location (based on a recent Foursquare check-in), marital status, where she went to school, political views, her favorite drink (based on Facebook photos), recent travels, her parents' and her brother's full names.").

83. Scott Austin & Andrew Dowell, '*Girls Around Me' Developer Defends App After Foursquare Dismissal*, WALL ST. J. DIGITS (Mar. 31, 2012, 9:42 PM), http://blogs.wsj.com/digits/2012/03/31/girls-around-me-developer-defends-app-after-foursquare-dismissal.

84. *See* Logan Booker, *Foursquare Cuts Off 'Girls Around Me,' the World's Creepiest App*, GIZMODO AUSTL. (Apr. 1, 2012, 12:30 PM), http://www.gizmodo.com.au/2012/04/foursquare-cuts-off-girls-around-me-the-worlds-creepiest-app ("The New York Times decided to give some page time to the app, developed by Russia-based 'O.O.O. SMS Services' (though it also appears to go by 'i-Free Innovations').); Paul, *supra* note 82 (noting that the application was developed by SMS Services and that the Russian firm i-Free Innovations was simply an investor).

85. As Austin and Dowell observe:

> Girls Around Me shows to the user only the data that is available to him or her through his or her accounts in Foursquare, and gives the user nothing more than Foursquare app can provide itself (when you browse venues around you in Foursquare, you can see how many people checked in there and you can see

"Girls Around Me" is not known at this time, any form of payment for the use of this application[86] would clearly constitute a purchase of personal information.

Applications like this are made possible by Facebook and other sites that collect, store, and sell access to personal information. Indeed, Facebook's business model is focused on attracting third parties into monetized agreements for personal information. As Facebook's initial public offering (IPO) approached, market analysts sought to determine the average revenue per user (ARPU) the company could generate. Before the IPO, Techcrunch noted that "Facebook will make between $4.69 and $4.81 from each of its 901 million monthly active users."[87] For a company whose assets are supposedly "free, and always will be," how do investors hope to see returns?

Facebook demonstrates the most popular models for raising revenue from third parties based on consumers' personal information. Third parties can purchase advertising directly from Facebook (self-serve), develop and launch applications on Facebook that house ads (apps containing ads), launch applications that collect monetary payments in Facebook's proprietary currency (Facebook Credits), or use any combination of these forms, each of which requires payments to Facebook.[88] Third parties pay Facebook in increasing amounts when consumers view their ads (cost per thousand impressions), click on their ads (cost per click), register on the advertising firm's site (cost per acquisition), and spend

> their profiles and photos, even contacts and social networks profile). The aim of the app is to make the usage of this data more convenient and more focused on finding popular and crowded venues.
>
> . . . Girls Around Me does not use any self-developed or third party services to search for extra information apart from the information the users share with others.
>
> . . . We made it perfectly clear that any personal message can only be sent from the user's account in Facebook (if he or she has one), and it can be done only if messaging is allowed by privacy settings of the recipient user.

Austin & Dowell, *supra* note 83.

86. Consider, in this case, the remarkably porous nature of information flow across national boundaries, made possible by the internationalization of social-networking sites. The norms and rules of law in Russian commerce and the incentives firms have to recoup costs may differ considerably from the same institutions and incentives in the United States. *See supra* notes 69–71 and accompanying text.

87. John Herrman, *This Is How Much You're Worth to Facebook*, BUZZFEED (Apr. 24, 2012, 11:36 AM), http://www.buzzfeed.com/jwherrman/this-is-how-much-youre-worth-to-facebook. This figure pertains to users worldwide; users from certain regions have a higher ARPU, *see infra* note 154.

88. Nick O'Neill, *The Secret to How Facebook Makes Money*, ALLFACEBOOK (Jan. 19, 2010, 10:37 AM), http://allfacebook.com/facebook-makes-money_b9896.

money on the advertiser's products (Facebook Credits).[89] At each stage, increasing amounts of personal information are revealed to the advertiser or developer. Merely visiting Facebook.com causes a number of cookies to be set on a user's computer.[90] As the consumer interacts with features and advertisements, more information is appended to the profile that is keyed to the user's cookie. If the consumer registers on the advertiser's site—a common precursor to obtaining free goods—the consumer may be required to enter personal information in order to gain access to the advertised product. Similarly, game publishers pay a nominal sum to Facebook in order to allow consumers to play their game within Facebook, sell access to part of a game to consumers for prices given in dollars and Facebook Credits, and house ads in their games. In all of these transactions, Facebook allows the third party to collect the personal information stored in the profiles of consumers and, in exchange, the third party splits its earnings with Facebook.

Facebook's largest paying customer for advertisements is the firm Zynga, Inc., the firm with the six most popular game applications on Facebook.[91] In fact, Facebook earned 11 percent of its revenue in the first quarter of 2012 from Zynga.[92] In its initial public offering in December 2011, Zynga was valued at $7 billion and boasted 240 million active consumers of its games,[93] approximately 2.9 million of which were paying users.[94]

Zynga recently purchased "Draw Something," a game meant for the touch-based iPad that mixes the features of Pictionary and hangman, for $180 million by acquiring OMGPop.[95] To play "Draw Something," consumers download the application from the Apple App Store free, and make an account. Zynga acquires the consumer's Apple account information when downloading the free application. When making an account, a consumer enters her name and email address. The consumer may then choose to play anonymously,[96] make a profile

89. Generally, Facebook keeps thirty cents and the developer or advertiser keeps seventy cents of every dollar converted to Facebook Credits. *What Fees Does 30% Revenue Share Cover?*, FACEBOOK, https://www.facebook.com/help/100541576707483 (last visited Dec. 19, 2013).

90. *Data Use Policy: Cookies, Pixels and Other Similar Technologies*, FACEBOOK, https://www.facebook.com/about/privacy/cookies?_fb (last visited Dec. 19, 2013).

91. O'Neill, *supra* note 88.

92. Douglas MacMillan, *Zynga Earnings Beat Estimates as Game Site Lures Users*, BLOOMBERG BUSINESSWEEK (Apr. 27, 2012), http://www.businessweek.com/news/2012-04-27/zynga-earnings-beat-estimates-as-game-site-lures-users.

93. *About Zynga*, ZYNGA, http://company.zynga.com/about (last visited Dec. 19, 2013).

94. MacMillan, *supra* note 92.

95. Peter Kafka, *Zynga Just Bought OMGPOP for $200 Million*, ALLTHINGSD (Mar. 21, 2012, 10:16 AM), http://allthingsd.com/20120321/looks-like-zynga-just-bought-omgpop-for-200-million.

96. Note that players may be anonymous to each other, but are never anonymous to OMGPop, Zynga, Facebook, or Apple.

specific to "Draw Something," or link her Facebook profile to her "Draw Something" profile. This choice occurs by pressing one button. Once linked to Facebook, the consumer's profile information, along with information from the profiles of her friends on Facebook, are immediately uploaded to and available on Zynga's servers.[97] Draw Something's free riders are targeted with banner ads until they spend a minimum of $1.99 on the game's virtual goods. After payment, the banner ads go away. Whether the tracking goes away is another matter.

When consumers upload free applications, input personal information to third party accounts, or link their social media profiles to third party applications, this information becomes subject to the third party's privacy policies and terms of service.[98] These processes of exchange illustrated by "Girls Around Me" and "Draw Something" demonstrate the ease with which personal information entered into social-networking services can be transferred to a third party and thereby become subject to the third party's privacy policies—whether or not the consumer intended for this result to occur.

Contractual hazards can also be more subtle. Recently, game firms also have begun to offer consumers features in the games that have a dollar value or price, that may also be purchased with Facebook Credits. To get access to the feature in the game or to earn more Facebook Credits, consumers are asked to provide "likes" that push advertisements onto the profiles of Facebook friends and allow the third party access to the personal information from friends' profiles. In other words, if the consumer pushes the firm's targeted ad to their friends, and if the consumer gives the firm access to their friends' profiles, the consumer receives virtual goods without paying the regular dollar price for those goods (as quoted in and convertible from Facebook Credits) or perhaps even receives a direct deposit of Facebook Credits. Thus, the transfer of personal information to third parties occurs not only through the user's own online behavior but also through the behavior of any Facebook "friend," and the exchange is reinforced by

97. It is worth noting that consumers choose from a list provided in the game of willing partners to play against. Photos often accompany the user identification of the willing partners. Despite the fun, kid-friendly look and feel of the game, nothing prevents users from targeting children as young as thirteen years of age and drawing lewd images during game play. Banner ads may also be oriented toward products for mature audiences.

98. Zynga's privacy policies and terms of service differ from those of Facebook in ways that suggest that Zynga and related third parties are under less scrutiny than the social-networking services they partner with to obtain personal information. *See Privacy Policy*, ZYNGA, http://company.zynga.com/about/privacy-center/privacy-policy# (last updated Sept. 30, 2011); *Terms of Service*, ZYNGA, http://company.zynga.com/about/legal/terms-of-service (last updated Sept. 30, 2011); *cf. FAQ*, ZYNGA, http://company.zynga.com/about/privacy/faq (last visited Dec. 19, 2013).

the firm's placement of a dollar value in Facebook Credits on this transfer of information.

These arrangements clearly show that firms consider personal information about each consumer to be very valuable, such that they go to great lengths to grow this asset. Why? Because firms can trade this asset for real economic returns. Personal information is an asset packaged and monetized by social-networking services; other firms can then access that package by purchasing it or executing revenue-sharing agreements with the collectors of that information. These revenue-sharing agreements generate high-powered incentives for social-networking services to provide third parties with maximum feasible access to information about consumers. These revenue-sharing agreements are valuable to social-networking services only to the extent that the third party—through applications like games and advertising—can creatively use the consumers' personal information to attract enough paying consumers to allow both firms to recoup expenditures and profit. Free offers just increase the chance that more consumers will provide valuable information that firms can use to try to induce such expenditures.[99]

If, for any reason, a firm is unable to earn enough revenue from either ads or paying customers, the firm can simply sell the personal information on the market. The firm may not even have intended to capitalize on the personal information it collected with each transaction, free or otherwise. Yet, if a firm is unable to recoup costs and finds itself forced to liquidate its assets, the firm receiving those assets could see fit to do so.[100] Firms can sell this personal information to brokers who aggregate the data into profiles of individual consumers and their households and then resell the data to other firms and interested parties. Current market arrangements incentivize firms to become sticky intermediaries where consumers spend much of their time and foster relationships with others, and in the process generate more personal information for the firms to use. Should firms want more personal information about their own users or consumers than they can acquire directly, they can even buy this information on the market, through a practice known as "enhancement."[101] This practice of data

99. *See* Shampanier et al., *supra* note 9, at 742 ("[P]eople appear to act as if zero pricing of a good not only decreases its cost but also adds to its benefits.").

100. Disney, in Club Penguin's privacy policy, retains the right to transfer the personal information collected along with the sale of the game. DISNEY CLUB PENGUIN, PRIVACY POLICY (2012), *available at* http://clubpenguinimg-a.akamaihd.net/sites/default/files/privacy_policy-1379973810.pdf.

101. Whittington & Hoofnagle, *supra* note 36, at 1359–60 (describing enhancement, a practice by which a business "appends" new data from other sources to information provided by the consumer).

aggregation, profiling, and sale is not well understood by consumers, as it is often implemented in order to mask the firm's abilities to identify the consumer,[102] and survey research on it suggests that consumers strongly oppose many elements of it when it is clearly explained to them.[103] Firms demonstrate awareness of these preferences when they hide the fact that they exchange information about consumers with third parties by requiring confidentiality clauses that prohibit the firm from informing the consumer of the exchange.[104]

Clearly, online firms' business models recognize the current and potential future value of consumers' personal information. Many firms with freemium business models have products to sell, yet devote remarkable amounts of attention and investment to the collection of data from and about free-riding consumers of their products. Social networking services, whose business model is premised on the value of personal information, transfer the cost of running the network to consumers through revenue and data-sharing agreements with third parties. These cases suggest that firms liken their databases of personal information to insurance policies, which they may cash in if the current business plan does not pan out. Firms also transfer business risks to the consumer with each distribution of personal information to another party, as well as through lack of attention to or investment in information security.

These are contractual hazards of today's free online offers. The first step to remedying such hazards is to recognize that the consumption of free online products and services imposes both non-pecuniary and pecuniary costs on consumers.

F. The Value and Cost of Personal Information

The exchange of personal information for goods or services represents a modern twist on the long tradition established by Adam Smith's characterization of the butcher and baker exchanging their wares.[105] Like bread and meat to the

102. See discussion *infra* note 157 (discussing Pineda v. Williams-Sonoma Stores, Inc., 246 P.3d 612 (Cal. 2011)).

103. *See infra* note 120.

104. Whittington & Hoofnagle, *supra* note 36, at 1360–62 (describing data industry use of "gag clauses" to hide the provenance of data sold to retailers and other companies).

105. Economist Adam Smith noted:

> It is not from the benevolence of the butcher, the brewer, or the baker, that we expect our dinner, but from their regard to their own interest. . . . The butcher has more meat in his shop than he himself can consume, and the brewer and the baker would each of them be willing to purchase a part of it. . . . [E]very prudent man in every period of society, after the first establishment of the division of labour, must naturally have endeavoured to manage his affairs in such a manner, as to have at all times by him, besides the peculiar produce of his own industry, a certain

butcher and the baker, the firm desires personal information, and the consumer desires the product or service. This is trade.

It is worth noting that trade in economically valuable goods occurs with or without money. Trade is a game. Parties trade goods for cost in relation to potential benefit. Each party is motivated to trade when the perceived benefit outweighs the perceived cost, whether such cost or benefit is measured in cash, credit, time, or satisfaction. As a game, each party bargains in trade with self-interest, attempting to secure greater benefit in relation to cost.[106] The most enticing offers are, indeed, those that appear to be free, because the moniker "free" gives the impression that the trade will cost nothing.

But, as indivisible units in a greater economic system, parties in trade are guided only by the famed invisible hand toward an end that confers a greater good to economy and society if the institutions governing their trade are effective in minimizing transaction costs.[107] The butcher and baker in Smith's famed tale experienced "near-zero" transaction costs: They presumably knew of one another, the quantity and quality of products offered were mutually satisfactory, neither misrepresented his product and neither was cheated as a result of the trade, and

quantity of some one commodity or other, such as he imagined few people would be likely to refuse in exchange for the produce of their industry.

SMITH, *supra* note 33, at 14, 22–23.

106. Smith further provided:

> As every individual, therefore, endeavours as much as he can both to employ his capital in the support of domestic industry, and so to direct that industry that its produce may be of the greatest value; every individual necessarily labors to render the annual revenue of the society as great as he can. He generally, indeed, neither intends to promote the public interest, nor knows how much he is promoting it. By preferring the support of domestic to that of foreign industry, he intends only his own security; and by directing that industry in such a manner as its produce may be of the greatest value, he intends only his own gain, and he is in this, as in many other cases, led by an invisible hand to promote an end which was no part of his intention. Nor is it always the worse for the society that it was no part of it. By pursuing his own interest he frequently promotes that of the society more effectually than when he really intends to promote it.

Id. at 423.

107. As Ronald Coase notes:

> In order to carry out a market transaction it is necessary to discover who it is that one wishes to deal with, to inform people that one wishes to deal and on what terms, to conduct negotiations leading up to a bargain, to draw up the contract, to undertake the inspection needed to make sure that the terms of the contract are being observed, and so on. These operations are often extremely costly, sufficiently costly at any rate to prevent many transactions that would be carried out in a world in which the pricing system worked without cost.

R. H. Coase, *The Problem of Social Cost*, 3 J.L. & ECON. 1, 15 (1960).

the terms of the trade maximized the self-interest of both parties. These circumstances are not present in the context of free offers online.

In online transactions, parties generally do not know of one another—at least not in any way resembling the physical world. It is relatively easy to arrange the bits and bytes a trading partner sees on a computer screen in such a way as to give the trading partner a false impression of one's identity or product. It is similarly easy to program online transactions in such a way as to exact more digital assets in trade than one's trading partner intended to share. The financial consequences of transactions that occur with the press of a button can be of such magnitude and lasting consequence that their implications for parties can easily dwarf those of typical purchases in our economy.

Transaction costs to consumers can be synonymous with losses of privacy. In fact, the transaction costs we identify map neatly onto the categories of privacy harms identified in Daniel Solove's influential *A Taxonomy of Privacy*.[108] Solove is author of multiple books on privacy including the leading textbook on information privacy. Transaction costs resemble Solove's privacy harms of identification,[109] aggregation of personal information about people,[110] and insecurity.[111]

We first illustrate the costs of identification and aggregation by comparing individuals who shop at a local drug store versus those who do the same shopping online. In the physical store, the retailer can watch the consumer and may even be assisted by tracking technology, such as security cameras. But even when the consumer pays with a credit card, the physical store has great difficulty in identifying the consumer uniquely.[112] On the other hand, a visitor to an online version of the same store is pervasively tracked. The seller monitors every movement. Every product momentarily viewed or compared can be noted. Every purchase is linked to actual identity and to contact information. Once a consumer is uniquely identified at one site, that site can pass on that identity information to others relatively easily. These practices implicate the identification and aggregation privacy interests identified by Solove.[113] Firms' and governments' identification of individuals changes societal power dynamics, potentially chilling individuals'

108. Daniel J. Solove, *A Taxonomy of Privacy*, 154 U. PA. L. REV. 477 (2006).
109. *Id.* at 510.
110. *Id.* at 505.
111. *Id.* at 515.
112. Chris Jay Hoofnagle et al., Mobile Payments: Consumer Benefits & New Privacy Concerns 5 (Apr. 24, 2012) (unpublished manuscript), *available at* http://ssrn.com/abstract=2045580 ("In a typical credit card transaction, all parties to the transaction get an incomplete view of the sale.").
113. Solove, *supra* note 108, at 504–15.

freedoms to act as they please and, on a societal level, changing the very nature of individuals' roles with institutions.

People who question the relationship between privacy and cost may imagine that the only cost one experiences from sharing personal information online is one's effort in typing it into the computer. This act, however, represents just the cost of digitizing information. In order to understand the real cost of information sharing, we must first recognize that information carries production costs and expectations. That is, social security numbers, bank account numbers, license plate numbers, residential addresses, phone numbers, email addresses, personal photographs, conversations, and other forms of information would not exist if not for the persons who participated in their creation, the persons whom they represent.[114] These persons implicated in personal information are supported or motivated to produce information by the institutional arrangements—social, economic, and political—that govern the establishment, maintenance, and uses of personal information. As producers of our own respective personal information, we have an expectation that information can remain private until we choose to share it—that is, privacy has been and continues to be the preferred default setting.

Although personal information may have a relatively stable intrinsic value,[115] the distribution and use of personal information by others can dramatically reduce the utility of the information to the person it represents—for instance, identity theft, fraud, and stalking have such an effect. Admittedly, these examples are extreme invasions of privacy, but most people have likely felt a preference to be undisturbed by even lesser intrusions: They may simply have desired anonymity when conducting their daily affairs, for example.

The potential costs from the unwanted or unexpected distribution of personal information are, at least in part, a reflection of these production costs and expectations. The process of reclaiming privacy could involve having to produce new identifying information. The effort exerted to do so constitutes a transaction cost and suggests the economic value of personal information to the individual. An appropriate signal for the utilitarian value of personal information is thus the cost of *replacing* it.[116] What would it cost to, for instance, obtain a new and equally valid social security number, bank account number, home address, phone num-

114. As with the firm, the cost to individuals of distributing information has plummeted with public access to, and the global footprint of, the Internet.

115. Personal information may provide intrinsic value by supporting one's sense of self, for example.

116. For competitively produced commodities, prices can serve as a proxy for the value of goods. *See generally* F. A. Hayek, *The Use of Knowledge in Society*, 35 AM. ECON. REV. 519 (1945). Conversely, we may not want a market for personal information. Though firms can currently purchase consumer profiles, the market price of that information reflects only its value to the

ber, or email address? Having obtained new information, what does it then cost, in time and expense, to return to the level of functioning acquired with the prior account numbers or addresses? In other words, it may cost nothing to enter one's information onto a computer ex ante, but these possibilities for ex post transaction costs suggest where the economic action resides.

Invoking the economic theory of public goods, some suggest that personal information is nonrivalrous, in that the value of the information to the person it represents is not reduced if and when others consume this information. This application of the theory of public goods is strained, however. The theory of public goods was developed to explain collective consumption goods. Conversely, personal information is unique to the person it represents, describes, or identifies. One's personal information is inherently private in that it represents one person, not a collective, placing it at odds with the concept of goods for collective consumption. The proposition that personal information is nonrivalrous is further flawed in that the term "consumption" is ambiguous and therefore fails to distinguish between various uses of that information—some of which are certainly rivalrous. Consumption might refer to a Facebook friend's casual browsing of one's homepage—an arguably nonrivalrous use. On the other hand, consumption also includes unwanted and unintended uses of personal information—such as identity theft—which in fact exemplify rivalrous consumption since a third party profits to the detriment of the person whom the information rightfully identifies.

More importantly, the theory of public goods is not complete without the concept of excludability, or the relative ability to prevent others from accessing and therefore consuming the good. As James Buchanan describes, many goods vary in their "collectiveness."[117] Two people could share a pair of shoes, or even a haircut, if they were willing to alternate use or divide the good among themselves in amicable ways. With so-called club goods, like community swimming pools, hunting clubs, or golf clubs, people selectively exclude access and are hypothesized to do so efficiently on the combined basis of the optimal membership size, shared capital and operating costs, capacity of the resource or facility, and preferences for managing congestion. A good consumed by one is purely private; the more a good is shared, the more public it becomes.

firms bargaining for such information, not the value of the information to the person it represents. The reliance on replacement cost as a measure of economic value and proxy for price is quite common in sectors in which legitimate markets fail to provide adequate signals for price. This substitution is frequently used in analyses of sectors that underlie the economy as a whole, as in monopolistic and public infrastructure services, for instance.

117. James M. Buchanan, *An Economic Theory of Clubs*, 32 ECONOMICA 1, 2 (1965).

Though awkward in its measure of harm from the distribution of personal information, this theory is highly applicable to infrastructure goods and services. The Internet is, after all, the largest club the world has ever known. It is arguably difficult to fathom the extent to which the distribution of one's personal, and highly valuable, information on the Internet causes that information to travel from the private to the public realm. The possibilities for the ultimate disposition and uses of the information are as varied as the interests and capabilities of those who access it. Many of those uses can engender ex post transaction costs to the persons represented by the information. Furthermore, the permanence of digitized data and the potential gravity of the economic and social consequences of moving it from private to public settings can be serious and lasting. The fact that people willingly abrogate the privacy of their own personal information by conveying such information to firms over the Internet in order to try free products, despite preferences for privacy, is therefore likely attributable to bounded rationality and information asymmetry on the part of the consumer. Such behavior is also supported by the low cost and lightning speed of digital distribution on the Internet.

The contrast between the ease with which sensitive personal information can be posted and distributed is profound when compared to the fact that the information that truly describes each person is created only once in a continuous path through one's lifetime. We should expect, because of the utilitarian value of the asset to be exchanged, protracted negotiations over the terms and conditions in governing agreements with both parties well-fortified with legal counsel, producing agreements that, when printed, stack several feet high. Instead, we see opt-in and opt-out boxes to click.[118] The intrinsic and utilitarian value of the asset to be exchanged should lead us to demand contractual and legal protections and remedies appropriate to the harm such losses would engender. Instead, we click and generally remain unaware of the transfer of assets. We then bear the ex post expense of our failure to negotiate ex ante. If one is unlucky enough to experience severe financial harm and savvy enough to identify it, one can pay private firms to clean up the mess. Moreover, in an extreme convolution, one can pay private firms in order to gain access to and modify or correct the personal information that the firm has collected about him or her.[119]

The simple fact that personal information is an asset unique to each consumer brings us to the logical conclusion that transactions with this information

118. Aleecia M. McDonald & Lorrie Faith Cranor, *The Cost of Reading Privacy Policies*, 4 I/S: J.L. & POL'Y FOR INFO. SOC'Y 540 (2008).

119. *See, e.g.*, *Do You Know What the Internet Is Revealing About You?!*, REPUTATION.COM, http://www.reputation.com/online-internet-privacy-software (last visited Dec. 19, 2013).

place each consumer in a bilateral dependent trading relation with each firm using that information. Furthermore, scraping, sending personal information belonging to others, and other viral forms of exchange accelerate the cascading flow of personal information through the marketplace, rendering consumers subject to bilateral dependent relations that the consumer never initiated with firms with whom the consumer never intended to trade. As the examples of "Draw Something" and "Girls Around Me" suggest, maladaptation can begin quickly, can spread like a virus, and can last a lifetime—consumers do not have the right or ability, in general, to take back their personal information from firms. This maladaptation may then impose transaction costs on the consumer initiating the trade in personal information, other consumers whose personal information is caught up in the viral transfer of assets, or the organizations spending time and money trying to lessen the damaging effects of these transactions.

G. Transaction Costs in Free Offers

In this environment for trade, the consumer is likely subject to severe bounds on rationality, is found on the less-than-desirable end of information asymmetry, and is apt to bear the brunt of ex ante and ex post contractual hazards posed by the opportunistic actions of firms and the transaction costs they engender. Transaction costs to consumers arise with the following activities: (1) the tracking of consumers, (2) the consumer's need to monitor the firm's activities, (3) the lock-in associated with switching costs, (4) a number of insecurities, including potential financial costs, stemming from the consumer's inability to compel firms to invest in information security, and (5) cancellation costs. The freedom of firms to impose rising costs on consumers is having a transformative effect in the online marketplace. Moreover, both individual consumers and industry analysts have recognized the difficulty in evaluating such harms as people find it challenging to place a dollar value on firms' dispersal of personal information. This Subpart examines and explains the ties between these elements of theory and the observed actions of firms in the context of free offers online.

Recall that bounded rationality leaves us limited knowledge of the actual costs firms bear in producing and distributing goods, whether online or off. Bounds on our rationality may also leave us unaware of the means firms will use to attempt to recoup those costs. Despite lengthy and growing terms of service and privacy, consumers enter into trade with online firms with practically no information meaningful enough to provide the consumer with either ex ante or ex post bargaining power. In contrast, the firm is aware of its cost structure, technically savvy, often motivated by the high-powered incentives of stock values, and

adept at structuring the deal so that more financially valuable assets are procured from consumers than consumers would prefer.

Ex ante, consumer expectations for privacy safeguards are fundamentally misaligned with the opportunistic financial incentives firms have to misrepresent intentions and subsequently trade personal information. Survey research into the nature of these transactions suggests that consumers are profoundly confused about the privacy rules surrounding internet services. For instance, in a 2007 survey of Californians, Hoofnagle and King found that a majority either did not know or falsely believed that privacy policies required businesses to obtain affirmative consent from the consumer before selling information to third parties.[120] On average, respondents correctly answered only 1.5 of 5 questions regarding online transactions and only 1.7 of 4 questions concerning offline privacy rules.[121]

Advocates of free business models, such as Anderson, address privacy risks in a cursory fashion. Responding to a critique that free services implicitly require more advertising, Anderson argues that relationships with advertisers are mediated by privacy policies.[122] The work of Hoofnagle and others, however, shows that consumers misunderstand the very purpose of and protections in privacy policies,[123] and as discussed above, more recent work shows that many websites leak personal information to third parties (perhaps unwittingly), in violation of their privacy policies.[124] On a more fundamental level, commentators are often confused about the privacy impact of advertising. The underlying issue is the tracking and aggregation of personal information about users, which can occur with or without advertising.

120. CHRIS JAY HOOFNAGLE & JENNIFER KING, RESEARCH REPORT: WHAT CALIFORNIANS UNDERSTAND ABOUT PRIVACY OFFLINE 7, 25 (2008), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1133075.

121. The online questions asked respondents whether privacy policies created legal obligations to refrain from disclosing personal information to third parties and the government and to obtain permission before tracking consumers across websites. TUROW ET AL., *supra* note 73.

122. ANDERSON, *supra* note 3, at 222–23.

123. JOSEPH TUROW, ANNENBERG PUB. POLICY CTR. OF THE UNIV. OF PA., AMERICANS AND ONLINE PRIVACY: THE SYSTEM IS BROKEN 3 (2003), http://www.annenbergpublicpolicycenter.org/Downloads/Information_And_Society/20030701_America_and_Online_Privacy/20030701_online_privacy_report.pdf; JOSEPH TUROW ET AL., ANNENBERG PUB. POLICY CTR. OF THE UNIV. OF PA., OPEN TO EXPLOITATION: AMERICAN SHOPPERS ONLINE AND OFFLINE 3 (2005), *available at* http://editor.annenbergpublicpolicycenter.org/wp-content/uploads/Turow_APPC_Report_WEB_ FINAL2.pdf; Joseph Turow et al., *The Federal Trade Commission and Consumer Privacy in the Coming Decade*, 3 I/S: J.L. & POL'Y FOR INFO. SOC'Y 723, 730–31 (2007-2008).

124. *See* Balachander Krishnamurthy et al., Privacy Leakage vs. Protection Measures: The Growing Disconnect (May 2011) (W2SP 2011: Web 2.0 Security and Privacy 2011 Workshop), *available at* http://www.cs.wpi.edu/~cew/papers/w2sp11.pdf.

Because production costs and high-powered incentives are ongoing, online firms are motivated to procure these assets from consumers over time. Hoofnagle and colleagues have shown that users are in a technical arms race with advertisers, one in which advertisers adopt new, unknown technologies to circumvent users' attempts to prevent tracking.[125] A key finding of this research shows that network tracking is centralized, ubiquitous, robust, and often redundant.[126] Consumers are uncertain about the firm's use of the information they provide, but attempting to discover firms' covert uses leaves the consumer poring through the complex language of terms of service and privacy. Thus, a byproduct of this arms race may be rising costs to consumers who wish to monitor the firm's behavior. This problem is compounded by the fact that information-intensive companies have incentives to mask certain practices, which in turn, increases consumers' transaction costs and further obscures the true price of the transaction. For instance, gag clauses are commonly used among data companies so that buyers of personal information used to target consumers are restrained from telling consumers the provenance of the data.[127] Gag clauses prevent transparency and frustrate self-help remedies. They may require companies to omit material privacy facts in representations to consumers.

Firms benefit from being the first to move into a market with a new concept or design for a "free" product. If not interoperable with other applications or sites, the continuing services the firm provides, coupled with the information consumers enter, may engender significant ex post transaction costs for consumers seeking to switch firms. Disenchanted customers may search for alternative trading partners, despite the loss of time and data unique to the original transaction; they may also risk the inability to persuade others to join a new socially networked product or service. In either circumstance, the threat of these transaction costs can form barriers to competition. Consider Anderson's quip: "People will pay if you make them (once they're hooked)."[128] The concept of lock-in is well under-

125. *See* Chris Jay Hoofnagle et al., *Behavioral Advertising: The Offer You Cannot Refuse*, 6 HARV. L. & POL'Y REV. 273 (2012).

126. *See id.*; *see also* Ashkan Soltani et al., Flash Cookies and Privacy (Aug. 10, 2009) (unpublished manuscript), *available at* http://ssrn.com/abstract=1446862.

127. Database companies prohibit their clients from telling consumers how data were acquired, what data were acquired, and the categories in which the consumer has been placed. One standard contract of a data broker requires that direct marketing to consumers "(i) shall not disclose the source of the recipient's name and address," and "(ii) shall not contain any indication that Client or Client's customers possess any information about the recipient other than name and address." *New Customer Terms*, CENT. ADDRESS SYSTEMS, INC., www.cas-online.com/DATACARDS/customerterms.pdf (last updated Aug. 2011).

128. ANDERSON, *supra* note 3, at 242.

stood in the industry of online products, and it dates back for several decades. According to Anderson:

> Competitors such as WordPerfect Office and Lotus SmartSuite charged PC makers rock-bottom prices to have their software "bundled" with new computers. The hope was that new PC consumers would use the software that came with the machine, investing in the programs with their learning and files, and when it came time to upgrade to a paid version they'd be hooked.[129]

Increasingly, tracking too has been bundled with the Internet. Firms' desire to track users affects the very design of the Internet. In 1959, Walter Lippmann complained of how advertising corrupted television: "[W]hile television is supposed to be 'free,' it has in fact become the creature, the servant, and indeed the prostitute, of merchandizing."[130] We are experiencing a similar subservience to advertisers in the free medium of the Internet.[131] One of the most troubling examples of this comes from Google's treatment of referrer headers. Simply put, when a user clicks on a link, a referrer header reports the URL of the last page the user visited.[132] This feature is very helpful to website owners who wish to improve the ability of users to find the webpages they want to visit. But in doing so, referrer headers indicate information about users' intentions, and in the case of Google, they often reveal the specific search string entered by the user. Privacy experts have identified referrer headers as a key problem for revealing sensitive information to others.[133]

In 2008, Google began to experiment with delivering search results through AJAX (Asynchronous JavaScript and XML).[134] In so doing, the company unintentionally blocked websites from receiving referrer headers. Website owners quickly noticed this change and complained loudly. Google engineer Matt Cutts assured these stakeholders, "It is not our intention to disrupt referrer tracking,

129. *Id.* at 103.
130. Walter Lippmann, *A Solution to TV Problem*, TUSCALOOSA NEWS, Oct. 29, 1959, at 4, 4.
131. Peter S. Menell, *2014: Brand Totalitarianism* (U.C. Berkeley Pub. Law Research Paper No. 2318492, 2013), *available at* http://ssrn.com/abstract=2318492.
132. *HTTP Request Fields*, WORLD WIDE WEB CONSORTIUM, http://www.w3.org/Protocols/HTTP/HTRQ_Headers.html (last updated May 3, 1994).
133. *E.g.*, *Facebook Leaks Usernames, User IDs, and Personal Details to Advertisers*, BENEDELMAN (May 26, 2010), http://www.benedelman.org/news/052010-1.html.
134. The history of this episode is well documented in a complaint to the FTC by former Google intern and FTC technologist Christopher Soghoian. Request for Investigation and Complaint for Injunctive Relief, *In re* Google, Inc. (F.T.C. filed Sept. 6, 2010), *available at* http://online.wsj.com/public/resources/documents/FTCcomplaint100710.pdf; *see also* Jennifer Valentino-DeVries, *Former FTC Employee Files Complaint Over Google Privacy*, WALL ST. J. DIGITS (Oct. 7, 2010, 6:51 PM), http://blogs.wsj.com/digits/2010/10/07/former-ftc-employee-files-complaint-over-google-privacy.

and we are continuing to iterate on this project."[135] On the other side of the dispute, Christopher Soghoian, a former staff technologist to the FTC, complained to the agency that, "Google knowingly leaks search queries through the referrer header and has taken steps to restore the leakage of this data on numerous occasions after it accidentally stopped providing the information."[136]

History repeated itself in 2011, when Google began to implement encrypted search services more broadly, known as "SSL [Secure Sockets Layer] search."[137] By default, these services made searches much more private.[138] For instance, an employee could use this enhanced service to make a search without the employer being able to decode the search activity.[139] Encrypted search capabilities also stopped the transmission of referral headers.[140] Google, however, created a workaround so that referral headers would continue to be sent to advertisers.[141]

Because consumers have so strongly embraced the free business model online, advertisers' interests have come to shape the online world itself. This means, as illustrated above, that services are being affirmatively designed to leak information to advertisers. But free ad-supported models impose costs on consumers in other ways as well. Recall Professor Solove's framework of privacy harms, in which he identifies one cost as "insecurity," which includes "[g]litches, security lapses, abuses, and illicit uses of personal information . . . . Insecurity, in short, is a problem caused by the way our information is handled and protected."[142]

Today, insecurity is exacerbated by the fact that most websites are transmitted unencrypted, or in the clear. Significantly, unencrypted transmission provides many opportunities for others to monitor users' browsing.[143] Although the broader adoption of SSL—an encryption service operating between the user and the website visited—could reduce insecurity, it would also interfere with most advertising networks, which cannot deliver ads over SSL. If websites were to im-

135. Matt McGee, *Google AJAX Search Results = Death to Search Term Tracking?*, SEARCH ENGINE LAND (Feb. 3, 2009, 5:41 PM), http://searchengineland.com/google-ajax-search-results-death-to-search-term-tracking-16431.

136. Request for Investigation and Complaint for Injunctive Relief, *supra* note 134, at 23.

137. Danny Sullivan, *Google to Begin Encrypting Searches and Outbound Clicks by Default With SSL Search*, SEARCH ENGINE LAND (Oct. 18, 2011, 2:09 PM), http://searchengineland.com/google-to-begin-encrypting-searches-outbound-clicks-by-default-97435.

138. *SSL Search*, GOOGLE, http://support.google.com/websearch/bin/answer.py?hl=en&answer=173733 (last visited Dec. 19, 2013).

139. *See id.*

140. *Id.*

141. Sullivan, *supra* note 137.

142. Solove, *supra* note 108, at 515.

143. This lack of encryption creates opportunities for government surveillance of massive amounts of consumer communications.

plement a more secure design, users would receive popups warning them that some of the content on a page was unencrypted. That unencrypted content would include the advertising and tracking elements served by third parties.

Consumers often do not understand the downstream risks of information collection because such risks are difficult to foresee. Such information could lead to standard privacy harms, such as embarrassment, or to more nuanced problems. The downstream risk may also come in the form of subtle misrepresentation. For instance, many advertisers claim that their tracking is anonymous. This may be true if one considers a single tracking event in isolation. In reality, however, advertising networks are able to view anonymous individuals repeatedly, generating a picture of the user that may be more meaningful than just the individual's name.[144] Likewise, websites can coax nonidentifiable information from users and can later use statistical tools to link the data to specific consumers.[145] They can also track individuals, silently collecting information about their interests, until the advertiser becomes confident enough to send an offer that causes the user to self-identify. Once that happens, the network can link the user's identity to all the previous information collected.

Insecurity is a major cost flowing from these information-sharing agreements. Websites can transfer information collected about consumers to an innumerable array of third parties without contravening basic protections of privacy policies. Once transferred, the firm and its business partners control the security of the data—they can choose to overinvest or underinvest in protections. If stolen, the data can generate substantial costs that harm the consumer directly.[146]

For example, Epsilon, a direct marketing service provider, experienced a significant security breach in 2011.[147] The breach concerned only nonsensitive information—email addresses and names shared with Epsilon by major companies such as Chase Bank and Verizon.[148] Nonetheless, even nonsensitive information can create security vulnerability, in this case, spear phishing. As Rod Rasmussen explained, spear fishers can "take advantage of known trust relationships between corporations and customers by crafting personalized messages that

144. *See* Arvind Narayanan, *There Is No Such Thing as Anonymous Online Tracking*, CENTER FOR INTERNET & SOC'Y (July 28, 2011, 12:38 PM), http://cyberlaw.stanford.edu/blog/2011/07/there-no-such-thing-anonymous-online-tracking.

145. *See id.*

146. It is estimated that 50 percent of all credit card numbers are possessed by Eastern European computer crime rings. JOSEPH MENN, FATAL SYSTEM ERROR: THE HUNT FOR THE NEW CRIME LORDS WHO ARE BRINGING DOWN THE INTERNET 210 (2010).

147. Brian Krebs, *Epsilon Breach Raises Specter of Spear Phishing*, KREBS ON SECURITY (Apr. 4, 2011), http://krebsonsecurity.com/2011/04/epsilon-breach-raises-specter-of-spear-phishing.

148. *Id.*

address recipients by name, thereby increasing the apparent authenticity of the email."[149] Another example comes from the security breach at the Gawker media companies in December 2010.[150] Malicious hackers obtained user IDs and passwords for 1.3 million users and then publicly posted them online.[151] Because users employ the same password at many different sites, this act exposed all of Gawker's users to attacks on other sites.

The data have value—but this value is difficult to evaluate. Several enterprising consumers have sued direct marketers for list selling. In those suits, plaintiffs have alleged that their names were being traded for a profit. They argued that the direct marketing use of consumers' information was therefore an appropriation of their identities.[152] Those cases have largely failed, in part because courts have reasoned that individuals' information was worth very little—as little as $0.01. But the move to social media has changed this landscape. As noted above, in its amended IPO, Facebook recently concluded that it earned an average ARPU of between $4.69 and $4.81.[153] Of course, some users are much more valuable. A later Facebook estimate determined that North American users had an ARPU of over $13, while the rest of the world combined generated an ARPU of just $5.32.[154]

From the perspective of efficient transactions, however, what matters is the user's ability to estimate the value of their time, attention, and personal information. Currently, we do not possess tools to make such calculations (the above estimate is based on Facebook's valuation), though the relationship between the cost of replacing the personal information and the unwanted dispersal of said information creates an intriguing avenue for research. Still, in today's marketplace, users cannot be expected to accurately estimate the value of the data they provide or, most importantly, the ex post costs they could incur after providing the data. Consumers are unlikely to have any knowledge of the various prices charged for personal in-

149. *Id.*

150. Remy Stern, *Gawker Security Breach: We're Here to Help*, GAWKER (Dec. 13, 2010, 4:01 PM), http://gawker.com/5713056/gawker-security-breach-were-here-to-help.

151. *See* John Hudson, *Why Gawker's Security Breach Is So Bad*, ATLANTIC WIRE (Dec. 13, 2010, 11:10 AM), http://www.theatlanticwire.com/entertainment/2010/12/why-gawker-s-security-breach-is-so-bad/21915.

152. *See, e.g.*, Dwyer v. Am. Express Co., 652 N.E.2d 1351, 1355–57 (Ill. App. Ct. 1995); Shibley v. Time, Inc., 341 N.E.2d 337, 339 (Ohio Ct. App. 1975); Andrew J. McClurg, *A Thousand Words Are Worth a Picture: A Privacy Tort Response to Consumer Data Profiling*, 98 NW. U. L. REV. 63, 137–42 (2003).

153. Herrman, *supra* note 87.

154. *See* Facebook, Inc., Quarterly Earnings Slides Q4 2012 (Jan. 30, 2013) (Powerpoint Presentation), *available at* http://files.shareholder.com/downloads/AMDA-NJ5DZ/2297890522x0x631721/fc91bd68-c60f-46c0-b3d4-f26455e115f7/FB_Q412_InvestorDeck.pdf.

formation in the marketplace, or to contemplate the costs, nonpecuniary or monetary, that they would incur if they were to find themselves in the unfortunate position of having to replace this information. The fact that the merchant who obtains consumers' personal information essentially controls the value of that information further complicates this landscape.[155] That merchant can decide to use the information only for the merchant's own purposes or to sell it to third parties.

Assume for a moment that consumers can accurately value the personal information they share. Current institutional arrangements allow firms to collect data that seems innocuous from the consumer's point of view, such as zip codes, and use that data as the means to collect more personal information than the consumer would prefer to share. Businesses sometimes buy data from online markets about their own customers, a practice known as "appending" or "enhancing" data.[156] Once a consumer provides any information—even just a name and zip code—the merchant can buy other data about the consumer that she chose not to reveal.[157] Thus, a merchant can add value to information provided, without the consumer's knowledge, and to the detriment of the consumer's privacy. Companies use these data brokers precisely because consumers will often refuse to share

155. *See* Oscar H. Gandy Jr., *Coming to Terms With the Panoptic Sort*, *in* COMPUTERS, SURVEILLANCE, AND PRIVACY 132, 150 (David Lyon & Elia Zureik eds., 1996) ("It is not the use to which the data subject might put the information that generates meaningful consequences, but the use to which it might be put by others.").

156. *See Marketing Glossary*, NEXTMARK, http://www.nextmark.com/resources/glossary-term/?term=enhanced+list (last visited Aug. 10, 2013) ("An enhanced list is a mailing list that has been appended with additional demographic, psychographic, behavioral, or attitudinal data.").

157. *See, e.g.*, Pineda v. Williams-Sonoma Stores, Inc., 246 P.3d 612 (Cal. 2011). The court explained the facts of the case illustrating the process by which a grocery store chain used information revealed by a customer in order to gain additional information about the customer:

> Plaintiff visited one of defendant's California stores and selected an item for purchase. She then went to the cashier to pay for the item with her credit card. The cashier asked plaintiff for her ZIP code and, believing she was required to provide the requested information to complete the transaction, plaintiff provided it. The cashier entered plaintiff's ZIP code into the electronic cash register and then completed the transaction. At the end of the transaction, defendant had plaintiff's credit card number, name, and ZIP code recorded in its database.
>
> Defendant subsequently used customized computer software to perform reverse searches from databases that contain millions of names, e-mail addresses, telephone numbers, and street addresses, and that are indexed in a manner resembling a reverse telephone book. The software matched plaintiff's name and ZIP code with plaintiff's previously undisclosed address, giving defendant the information, which it now maintains in its own database. Defendant uses its database to market products to customers and may also sell the information it has compiled to other businesses.

Id. at 615.

certain information, feeling that such probing is an invasion of privacy.[158] And once a firm has decided that it may circumvent the consumer's preferences and purchase data from a third party in order to mask such practices, why should the firm stop with purchasing the consumer's address? Data brokers offer medical, financial, and public records information that may be much more sensitive than addresses. The availability of increasingly complete profiles of consumers will, if left unattended, raise both the individual and aggregate risks of identity theft and increase the chances that illegitimate uses of this information will be rewarded.

Finally, all consumers are familiar with the disparity between the ease of signing up for a service versus cancelling one. Businesses have substantial incentives to burden cancellation. This problem is not limited to marginal, fly-by-night companies. Even big banks construct speedbumps to cancellation, such as requiring in-person interactions or even imposing fees on account closures.[159]

H. The Allure of Free

The idea that people are more likely to respond to an offer labeled "free" is common knowledge. Everyone wants something for nothing. That is the appeal and the allure of "free" offers—appeal if the firm's aim is simply to encourage the consumer to sample a product, and allure if the aim is to trick the consumer into giving the firm something of value in exchange. Do online offers simply appeal to consumers, or do they also mislead consumers?

Economists explain the appeal of free offers in transaction cost terms. A mental calculus separates consumers' perceptions of free offers from those with monetary prices attached. Anderson argues that pricing services as free short-circuits consumer skepticism, causing consumers to adopt services without considering them:

> A single penny doesn't really mean anything to us economically. So why does it have so much impact?

158. *See* Natasha Singer, *Mapping, and Sharing, the Consumer Genome*, N.Y. TIMES, June 16, 2012, https://www.nytimes.com/2012/06/17/technology/acxiom-the-quiet-giant-of-consumer-database-marketing.html (quoting Acxiom's fact sheet, which explains that "[s]imply asking for name and address information poses many challenges: transcription errors, increased checkout time and, worse yet, losing customers who feel that you're invading their privacy" (internal quotation marks omitted)).

159. *See* Robin Sidel, *Customers to Banks: It's You, Not Me*, WALL ST. J., Dec. 2, 2011, http://online.wsj.com/article/SB10001424052970204397704577072461772546658.html (describing "stall tactics" such as fees and other requirements that consumers encounter while trying to cancel a bank account).

> The answer is that it makes us think about the choice. That alone is a disincentive to continue. It's as if our brains were wired to raise a flag every time we're confronted with a price. This is the "is it worth it?" flag. If you charge a price, any price, we are forced to ask ourselves if we really want to open our wallets. But if the price is zero, that flag never goes up and the decision just got easier.
>
> The proper name for that flag is what George Washington University economist Nick Szabo has dubbed "mental transaction costs." These are, simply, the toll of thinking. We're all a bit lazy and we'd rather not think about things if we don't have to. So we tend to choose things that require the least thinking.[160]

Firms employ free offers to avoid a mental calculus that might prevent consumers from sampling online products.

Consumer research also recognizes the allure, or deceptive framing that free offers can employ. Boush, Friestad, and Wright, in their 2009 summation of consumer deception research, describe the problem of "deceptive framing." They define this term as a firm's presentation of an "incomplete and biased representation of a decision problem that misleads [consumers'] perception and analysis of that problem, and thereby misleads their entire decisionmaking process."[161] Marketing a "free" price fits well into the Boush et al. definition of deceptive framing. In so doing, "marketers present a narrow way of thinking that focuses on only one or a few aspects of a more complex decision problem."[162]

Transaction cost economics does not conceive of consumer exchanges of personal information for ostensibly "free" goods as free at all. The costs of transacting may be borne by the consumer during the transaction, in the form of ads that vie for the consumer's attention. The user may provide the firm something valuable by, for instance, spending time promoting the products to others. Costs to consumers may accrue later, such as if the user decides to pay directly for the good or service. Or the costs may accrue to consumers because of actions taken by the firm beyond the consumer's view or control, in transactions with third parties that leverage or sell the consumer's personal information, or put the consumer's information at risk for breach and cybercrime.

If such costs were obligatory, there would be a straightforward rationale for action. David Friedman argues that free offers with obligations should be outright banned. Friedman asks,

160. ANDERSON, *supra* note 3, at 59; *see also* Shampanier et al., *supra* note 9, at 753–54 (suggesting that critical engagement can counter the "zero price effect").
161. BOUSH ET AL., *supra* note 10, at 62.
162. *Id.*

> On its face, how can a free offer with conditions attached be free? . . . Why should regulators permit advertisers to exploit emotional responses to a representation that is essentially false? This Article at its essence advocates an outright ban or an effective neutralization of the 'free offer' because there is simply no such thing.[163]

Friedman argued that free offers should be flatly prohibited, except in the introductory context or under conditions such as those in which samples are handed out at a grocery store.

A TCE approach leads to a focus on the ex post costs to consumers and firms that result from free transactions. As a preliminary matter, however, we do recognize that it is entirely possible for online firms to develop and deliver products under a freemium or similar business model, sticking to legitimate forms of payment and sources of revenue and without relying on the hidden cost of trade in digitized assets. In fact, such a model is widely accepted in infrastructure industries and is termed cross-subsidization. In recognition of the fact that some consumers have more willingness and ability to pay than others, cross-subsidies represent a basic tool used to support the equitable delivery of products and services.[164] Free riders do not suffer hidden costs if the firm seeks to recoup costs only from those who are willing to pay and if both the consumer and the firm clearly understand the nature of the payment. Cross-subsidization and cost recoupment can then occur through the availability of a premium service, donations, or impersonal advertising. Importantly, this model demands that firms bear their own business risks. Those risks, in turn, incentivize firms to produce products worth purchasing because the firm can perpetuate the cross-subsidy only if the firm can generate enough revenue from paying customers to cover its costs. When this occurs, consumers of "free" offers actually enjoy something for nothing.

Our analysis shows, however, that the tables are often turned in the online world—free offers in fact mean that *the firm* can enjoy something for nothing. As we have also shown, the relevant economic effect in the free offer context is not the marginal cost of distributing the online product. Rather, it is the high-powered incentives firms have to recoup millions in ongoing production costs and to maintain stock values, coupled with firms' ability to bank on the monetiza-

163. Friedman, *supra* note 8, at 68–69.

164. Premium postal services provide revenue to support the continued provision of more expensive, yet equally important, postal service to rural communities. The same is true in transportation services, when high-value cargo affords a premium while passenger service can ride in the same plane. Additionally, higher education subsidizes low-income students with grants and scholarships paid in part by the cost of tuition from the rest of the student body.

tion of personal information from consumers. Third-party transactions ensure the ability of firms to reap returns from this information about consumers. Firms can pay "zero" to deliver their product to consumers while deceiving consumers into trading personal information. Thus, the firm enjoys something for nothing.

Indeed, as illustrated in the case of "Girls Around Me," a person's profile can end up on a firm's servers even if she (and her friends) have absolutely no direct contact with the firm. She does not click on a free offer or try a free product. She simply makes a Facebook profile and allows Foursquare to track her location. An entirely different consumer can download an application, enter his location and, suddenly, he can access her profile. In fact, her profile has become available to him, and the developer of the application, and anyone else with whom those parties desire to share. In this case, the individual suffers a cost, for nothing.

The economics of free trade for personal information are certainly problematic for the transaction costs they raise. In the next Part, we examine FTC approaches to regulating free offers. We then explain how the FTC approach could expand the universe of possible remedies for consumers.

II. THE FTC GUIDE CONCERNING USE OF THE WORD "FREE" AND SIMILAR REPRESENTATIONS

Free offers are regulated at the state level and by the FTC. The FTC approach to regulating free offers is set forth in the FTC Guide.[165] Adopted in 1971[166] following a two-year-long notice-and-comment period,[167] the FTC hoped that the FTC Guide would, "insure [sic] that the consuming public is not deceived by offers of nonexistent bargains or bargains that will be misunderstood."[168]

The FTC Guide is woefully out of date and does not address modern transactions in which the basis of the bargain is personal information. The FTC ignored numerous opportunities to address information in free transactions, deciding instead to base its enforcement activities on other attributes of transactions, such as hidden pecuniary costs. Still, several aspects of the FTC Guide concern the duty of sellers to establish an ordinary, reasonable price for goods later offered as free, which could offer a basis on which the FTC could more stringently regulate free personal information transactions. We first discuss the FTC

165. 16 C.F.R. § 251.1 (2013).

166. *See, e.g.*, Guide Concerning Use of the Word "Free" and Similar Representations, *supra* note 18.

167. *See, e.g.*, Guide Concerning Use of Word "Free" and Similar Representations: Notice of Opportunity to Present Written Views, Suggestions, or Objections, 34 Fed. Reg. 5444 (Mar. 20, 1969).

168. Guide Concerning Use of the Word "Free" and Similar Representations, *supra* note 18, at 21,517.

Guide's principal area of concern—direct cost recovery from free offers—then turn to other aspects that could be relevant in free personal information transactions. Finally, we note the numerous cases in which the FTC did not address information collection in past free-offer cases.

A. Direct Cost Recovery

The FTC Guide reflects the particular issues that concerned the FTC over its decades-long effort to police free offers. Much of the FTC Guide is occupied with concerns that retailers will inflate the price of one item in order to recover costs associated with giving a different product away free.[169] Retailers are not supposed to recover the cost of a free item directly.[170] For example, in *In re Lux-Visel Co.*, the FTC ordered an electric water-heater retailer to stop marketing its product as free, because

> [the] price of so-called "free heater" was included in [the] price of other articles, rendering of a service or payment of money was required before such free heater was furnished by it, and [the] price charged for the one heater and the "free" heater was the regular customary price charged for two, and said offer was not special, but one of long standing which constituted its permanent method of doing business, with [the] price referred to included in that of other articles which must be purchased to obtain so-called "free" item.[171]

B. Setting a Price for a Free Offer

The FTC has also been concerned with sellers representing that a product is free "for a limited time," when in fact there is no temporal bound to the offer.[172] Perhaps this is an extension of the FTC's concern with direct cost recovery—a perpetual free offer by necessity would have to be offset by the ordinary price of other goods. For instance, in a 1939 case, a manufacturer of imitation marble and granite tombstones and memorials represented that "a footstone was given free by

169. *See* 16 C.F.R. § 251.1(b)(1).

170. As this Article is intended to show, the idea that a firm does not accrue costs when providing free offers, and would therefore not attempt to recover the cost of producing free offers, is difficult to imagine under business models in either the physical or online world.

171. *In re* Lux-Visel Co., 28 F.T.C. 1074, 1074 (1939); *see also In re* Perfect Mfg. Co., 43 F.T.C. 238, 238 (1946) ("[T]he cost of its product offered as 'free' was included in the purchase price of other merchandise purchased, and the so-called 'free offer' was nothing more nor less than a combination offer . . . .").

172. *See* 16 C.F.R. § 251.1(f)(2).

him with every order for [a] tombstone or memorial."[173] The FTC found, however, that "[a] footstone is not given 'free' with each order, but the price thereof is included in the price respondent asks for the tombstone or other material and the so-called 'free offer' is in fact a continuing combination offer regularly made by respondent."[174]

If the FTC has determined that perpetually free offers are not, in fact, "free,"[175] then it follows that the product or service must have had a price at some point in time.[176] For instance, in *In re Carpets "R" Us, Inc.*,[177] the FTC objected to a carpet seller who offered free installation. The FTC ordered the company to refrain from making free offers unless the company based such offers on some established price. The FTC declared, "To represent that merchandise or services are offered 'free' in connection with the sale of other merchandise or services, there must have been an established regular price on which to base the 'free' offer."[178] The FTC ordered the company to refrain from making free or discount offers unless the advertisements were based on the "price at which such merchandise or service has been sold or offered for sale by respondents for a reasonably substantial period of time in the recent regular course of their business."[179]

These concerns about perpetual free offers and free offers with no regular set price provide a legal hook for FTC scrutiny of free transactions for personal information. Web services are permanently marketed as free. Recall Facebook's slogan: "It's free and always will be." In Part C, we turn to the costs of using free transactions for personal information—costs that could be disclosed as part of the obligation of the free offer.

C. The FTC Has Not Used Obligations to Disclose Personal Information as an Enforcement Hook in Free Offer Cases

The FTC has bypassed many opportunities to examine obligations to provide personal information in exchange for free offers. Instead, the FTC has pri-

173. *In re* Roy D. Burnsed, 30 F.T.C. 436, 436 (1940).
174. *Id.* at 439.
175. *See* 16 C.F.R. § 251.1(h) ("So that a 'Free' offer will be special and meaningful, a single size of a product or a single kind of service should not be advertised with a 'Free' offer in a trade area for more than 6 months in any 12-month period."); *In re* Instruction Serv., Inc., 28 F.T.C. 756, 757 (1939) (forbidding the defendant from advertising as "free" a penmanship course that "was continually and regularly offered to all applicants and prospective students" and the price of which was "included in that of the respective course or courses of study").
176. *See* FTC v. Mary Carter Paint Co., 382 U.S. 46 (1965).
177. 87 F.T.C. 303 (1976).
178. *Id.* at 322.
179. *Id.* at 340.

marily attacked pecuniary obligations embedded in these offers. In some cases, the FTC has also frowned on obligations requiring the consumer to provide some service to the seller. These two lines of cases may strengthen the case for FTC intervention in free transactions for personal information.

In most free offer cases involving the compulsory conveyance of personal information, the FTC chose to focus on pecuniary aspects of the transaction. For instance, in *In re William M. Irvine,* a company marketed silverware through "sales-promotion cards," popularly known in the direct marketing industry as "leads" or "lead cards."[180] The company led consumers to believe that they could obtain the silverware free after returning a certain number of sales-promotion cards. In addition to providing information, consumers would also have to send in one cent.[181] The FTC hinged its enforcement action on the requirement to pay one cent instead of the obligation to complete sales-promotion cards. The company was ordered to cease "[r]epresenting that respondent will give silverware or other merchandise free, when such silverware or other merchandise is not actually given free."[182]

Similarly, in *In re S. W. Pike, Seedsman, Inc.*, a seed seller represented that it "would send free of charge two dozen Giant Darwin Tulips, five packages of assorted flower seed, one package of new Ever-blooming Easter Lily and its catalog, for five names of friends who love flowers and 20 cents to cover packing and postage, and that if accepted within ten days it would send free of charge a beautiful hardy Chinese Regal Lily bulb."[183] In reality, in order to enjoy the free seeds, the customer had to make an order from the seller's catalog. The FTC ordered the retailer to cease and desist from representing the seeds, bulbs, and flowers as free.[184]

The FTC has also found—albeit in a smaller number of cases—the performance of a service to be a form of remuneration and has therefore objected to free offers that were dependent on some service to be provided by the consumer.[185]

180. *In re* William M. Irvine, 30 F.T.C. 866, 866 (1940); *see also Marketing Glossary*, *supra* note 156 ("A lead is a prospect who has identified himself or herself, and is engaged in the buying process."). Lead cards were an object of desire in *Glengarry Glen Ross*. GLENGARRY GLEN ROSS (New Line Cinema 1992).

181. *In re William M. Irvine*, 30 F.T.C. at 873–74.

182. *Id.* at 875.

183. *In re* S. W. Pike, Seedsman, Inc., 18 F.T.C. 82, 85 (1933).

184. *See id.* at 88.

185. *See* Stipulation (4013), 40 F.T.C. 777, 777 (1945) (describing how a portrait studio agreed to cease and desist from representing any merchandise as free "when such article is not a gratuity, and the prospective recipient is required as a consideration to purchase some other article or articles or render some service in order to obtain the same"); Stipulation (4094), 41 F.T.C. 389, 392 (1945) (describing how a retailer agreed to refrain from representing that

For instance, in *In re B.D. Ritholz*, a vendor of eyeglasses offered free products to consumers who "solicit[ed] . . . others to purchase from respondents a certain number of spectacles at a price to the purchasers which covers the cost of the spectacles thus sold and of the spectacles offered and represented to be given free."[186] Thus the glasses offered were really "given as payment for the work and services required by respondents."[187] The FTC barred the respondent from claiming

> that the spectacles sold by them direct to the purchasing public [could] be obtained "free" . . . when in fact said spectacles [were] not given free or as a gratuity but [were] given in consideration of personal services rendered or performed by certain customers in securing for respondent cash orders for two or more pairs of its spectacles from other customers.[188]

As discussed further below, the FTC's prohibition on conditioning free offers on rendering a service is applicable to free transactions for personal information.

D. FTC: Free Can Mean Not Free

In his study of free-offer marketing, David Friedman identified a key loophole in the regulation of free offers: The FTC's interpretation allows businesses to attach a separate financial obligation to a "free offer."[189] Friedman labeled this loophole the "Mead Paradox," invoking the former FTC commissioner James Mead's objection to the allowance of a free offer that required the purchase of other merchandise.[190] The case concerned a book-of-the-month type scheme. In the typical offer, a consumer would receive free copies of the *Iliad* and the *Odyssey*, but, as a condition, would be required to pay for other books received on a monthly basis.[191] The FTC permitted the scheme, setting forth the modern standard governing free offers. Under this standard, the FTC will generally consider the use of free offers to be unfair and deceptive unless two conditions are met. First, the conditions and obligations accompanying the free offer must be

any article of merchandise is free when "such article is not a gratuity, and the prospective recipient is required as a consideration to purchase some other article or articles or render some service in order to obtain the same").

186. *In re* B. D. Ritholz, 13 F.T.C. 240, 241 (1930).
187. *Id.*
188. *Id.* at 245.
189. *See* Friedman, *supra* note 8, at 54–55.
190. *Id.* at 67, 76 (discussing *In re* Walter J. Black, Inc., 50 F.T.C. 225 (1953)).
191. *In re Walter J. Black, Inc.*, 50 F.T.C. at 228.

set forth at the outset, "so as to leave no reasonable probability that the terms of the advertisement or offer might be misunderstood."[192] Second, sellers cannot offset the cost of providing a free product by increasing the ordinary price, quality, or size of the product that must be purchased in order to obtain the free offer.[193]

Dissenting from the FTC's decision to allow this scheme, Commissioner Mead argued forcefully,

> The enrollment books are either free or they are not free. They cannot be both. The advertisements feature a representation that the books are free. Elsewhere in the advertisements is the statement which indicates that such books are not free. At best, these statements are contradictory. One of the statements must therefore be contrary to fact. This is obviously the statement that the books are free.[194]

In the proceeding that led to the development of the 1971 FTC Guide, two participants embraced Mead's argument. First, the Council on Consumer Information urged the FTC to promote morality in the marketplace and characterized free offers with a corresponding obligation to buy as a corruption of the word free.[195] The Better Business Bureau of Chicago also objected to the attachment of commercial obligations to free offers.[196] Nonetheless, industry representatives supported Mead paradox offers. In a two-page letter, the Association of National Advertisers (ANA) urged the FTC not to condemn free offers, arguing, "Free offers and similar representations have always ranked high in consumer favor among the promotional techniques commonly employed by national advertisers."[197] The ANA continued, "Such offers promote healthy competition legitimately and effectively; to deprive national advertisers of their use would serve only to channel marketing and promotional efforts into less efficient alternatives."[198]

In the end, the FTC's Guide and decisions have seemed to favor these latter arguments. They allow sites such as Facebook.com to continue to use the term "free" even when offers are contingent on the consumer's performance of certain obligations, so long as Facebook clearly discloses those obligations. This ap-

192. *Id.* at 226.
193. *Id.* at 235–36.
194. *Id.* at 239 (Mead, Comm'r, dissenting).
195. Letter from Stewart Lee, Editor, Journal of Consumer Affairs, to the Fed. Trade Comm'n (Mar. 27, 1969) (on file with authors) ("I think it is too bad the marketers have corrupted the definition of the word free[,] and I will be disappointed if the FTC continues to allow this corruption.").
196. Letter from James E. Baumbart, Dir. of Operations, Better Bus. Bureau of Metro. Chi., to the Fed. Trade Comm'n (Apr. 25, 1969) (on file with authors).
197. Letter from Peter W. Allport, President, Ass'n of Nat'l Advertisers, to the Fed. Trade Comm'n (May 15, 1969) (on file with authors).
198. *Id.*

proach differs from the one taken by our European counterparts, which flatly bans the use of "gratis" or "free" if the consumer has to pay anything other than the "necessary cost"—or the "unavoidable cost of responding to the commercial practice and collecting or paying for delivery of the item."[199]

As examined earlier in this Article, the special attributes of transactions that induce consumers to convey personal information—especially when firms present those transactions as free—are problematic because they impose hidden pecuniary costs and risks on consumers. As explained in the next Part, the current regulatory scheme's failure to regulate the use of the singular term "free" adequately quite possibly represents the greatest shortcoming of the current approach to protecting personal information.

III. REMEDIES TO REDUCE THE COST OF FREE OFFERS

The FTC is scheduled to revisit its FTC Guide in 2017. Here we discuss approaches that the agency could take.

A. An Exchange for Value

Under current law, only transactions for value are likely to be subject to consumer protection laws. For instance, in the recently decided *In re Facebook Privacy Litigation*, a federal court considered whether Facebook's alleged transfer of personal information to advertisers violated a variety of privacy and consumer protection statutes and ultimately concluded that users of free services were not "consumers" under California law.[200] Thus, reconceptualizing free transactions conditioned on the provision of personal information as involving an exchange for value is prerequisite to ensuring consumer protection.

At issue in the Facebook case was privacy leakage. Leakage occurs when a consumer visits a website with code that—probably inadvertently—reveals personal information about the consumer in the website's URL.[201] Privacy leakage is a widespread problem with advertising-supported websites. Balachander

199. Directive 2005/29/EC of the European Parliament and of the Council of 11 May 2005, L149 OFFICIAL J. EUR. UNION 22, 36 (June 11, 2005), *available at* http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2005:149:0022:0039:EN:PDF; *see also* Purely Creative Ltd., Case C-428/11 (Gen. Ct. 6th Chamber 2012), *available at* http://curia.europa.eu/juris/document/document.jsf?text=&docid=128652&pageIndex=0&doclang=EN&mode=lst&dir=&occ=first&part=1&cid=499014 (concerning obligations to obtain a "free prize").

200. *In re* Facebook Privacy Litig., 791 F. Supp. 2d 705 (N.D. Cal. 2011).

201. Krishnamurthy et al., *supra* note 124, at 10 (emphasis omitted).

Krishnamurthy et al. found in their 2011 study that a majority of the popular sites they analyzed "directly leak[ed] sensitive and identifiable information to third-party aggregators." The problem they identified was widespread: "56% of the 120 popular sites in [their] study (75% if we include userids) directly leak sensitive and identifiable information to third-party aggregators."[202]

As Krishnamurthy et al. suggest, leakage enables third-party advertisers to see personal information and capture it. This was the basis of the Facebook litigation—that Facebook designed its site in contravention of its promises not to share personal information with advertisers.[203] The plaintiffs brought a series of claims, including one under California's consumer-friendly Unfair Competition Law[204] and another under the Consumers Legal Remedies Act.[205] Facebook argued that these claims should fail because the plaintiffs involved had not purchased anything and thus were not consumers for purposes of the law.[206] The court agreed, dismissing both claims and expressly holding that one is not a consumer for the purposes of consumer protection law if the service used is free: "Because Plaintiffs allege that they received Defendant's services for free, as a matter of law, Plaintiffs cannot state a UCL claim under their own allegations."[207]

The court distinguished *Doe 1 v. AOL, LLC*, in which plaintiffs alleged violations of the Consumer Legal Remedies Act based on AOL's disclosure of internet search histories of 650,000 of its users.[208] The *Facebook* court noted that the *AOL* disclosure involved particularly sensitive information, and that *AOL* stood for the proposition that, "a consumer of certain services (i.e., who 'paid fees' for those services) may state a claim under certain California consumer protection statutes when a company, in violation of its own policies, discloses personal information about its consumers to the public."[209]

The *Facebook* court's interpretation of who qualifies as a consumer ignores the value of individuals' personal information—an asset that, for many infor-

202. *Id.*
203. *In re Facebook Privacy Litig.*, 791 F. Supp. 2d at 708–09; *see also Data Use Policy*, FACEBOOK, https://www.facebook.com/full_data_use_policy (last updated Nov. 15, 2013) ("We only provide data to our advertising partners or customers after we have removed your name and any other personally identifying information from it, or have combined it with other people's data in a way that it no longer personally identifies you.").
204. CAL. BUS. & PROF. CODE § 17200 (Deering 2007).
205. CAL. CIV. CODE § 1750 (Deering 2005).
206. Facebook, Inc.'s Motion to Dismiss Consolidated Class Action Complaint at 21, *In re Facebook Privacy Litig.*, 791 F. Supp. 2d 705 (No. 10-CV-02389) ("Because Facebook's service is free, by definition it is not 'purchased or leased' by a consumer and therefore the CLRA does not apply.").
207. *In re Facebook Privacy Litig.*, 791 F. Supp. 2d at 714–15, 717.
208. *See* Doe 1 v. AOL LLC, 719 F. Supp. 2d 1102 (N.D. Cal. 2010).
209. *In re Facebook Privacy Litig.*, 791 F. Supp. 2d at 714–15.

mation companies, represents the company's biggest (and sometimes only) asset. It removes Facebook and many other information-dependent websites entirely from a key consumer protection regime in California.

Even more alarmingly, the application of the Facebook court's reasoning to other consumer protection statutes could undo much of the common law of privacy created by the FTC. Specifically, application of the FTC organic statute is conditioned on detriment to "consumers,"[210] and its policy statement on deceptive practices explicitly requires conduct misleading a "reasonable consumer."[211] Requiring these consumers to be paying users would therefore profoundly affect FTC precedent in the privacy space. If a user who provides personal information rather than cash does not qualify as a consumer, consumers would be left without remedy against a wide range of unscrupulous conduct; moreover, companies that, for example, trick kids into revealing financial information about their parents[212] or engage in behavior similar to that at issue in the recent Google and Facebook cases would go unpunished.

Without the threat of legal repercussions, dominant providers of "free" services would have little reason to implement rigorous privacy policies or to fix commonly known security problems, such as privacy leakage. And with the modern dominance of transactions for personal information online, entire swaths of the new economy would simply be beyond consumer protection law.

Fortunately, a simple adjustment—the recognition that the transfer of personal information constitutes an exchange for value—could avoid such consequences and increase the efficiency of transactions. The next Part, however, describes what might ensue were the FTC to forego this adjustment and do nothing.

B. Caveat Emptor

The FTC could always simply do nothing. Such a caveat emptor approach is, however, quite unlikely, given that the agency strongly rejected such approaches beginning with the consumer movement in the 1930s. A pure caveat emptor approach would likely sour consumers on the market, making them jaded and untrusting.

210. 15 U.S.C. § 45(n) (2012).
211. FED. TRADE COMM'N, FTC POLICY STATEMENT ON DECEPTION (1983), *available at* http://www.ftc.gov/ftc-policy-statement-on-deception.
212. *See, e.g.*, Complaint, *In re* Liberty Fin. Cos., 128 F.T.C. 240 (1999) (No. C-3891), *available at* http://www.ftc.gov/os/1999/08/libertycmp.pdf.

Still, maintaining the status quo would convey two benefits. First, as Chris Anderson points out, free offers make it very easy for businesses to acquire new customers. Anderson characterizes free offers as having an ability to short-circuit general consumer skepticism, making them more willing to try new things. Indeed, consumers flock to new free services, such as Google's Gmail. This allows firms that offer free services to disrupt existing business models and introduce new tools to consumers.

The advantage perhaps explains why the FTC excludes introductory offers from the central definition of free in the FTC Guide.[213] It is well understood, at least in the offline world, that introductory offers provide consumers with a preview of a product with no obligation and set a certain date on which the consumer will be charged. But even introductory offers are subject to regulation of the use of certain information. For instance, in the case of free trial offers made by telemarketers in possession of the consumer's credit card number (preacquired account telemarketing), the marketer must explicitly tell the consumer about the impending charge, indicate that the telemarketer is in possession of the consumer's card number, and record the entire transaction.[214]

We have argued above that transactions for personal information, even in the case of introductory offers, do have real costs. They differ from free offers in the physical world, such as samples of food at a food court. The consumer who eats a free sample leaves the food court more satiated and the business benefits by exposing its product to new consumers. In the online introductory context, the consumer leaves personal information behind that could be used by the firm for other purposes later.

Second, free services may actually offer consumers greater privacy protection than consumers would otherwise receive if they had to pay for those same services. This may seem counterintuitive, given our explanation of network tracking above. But as pervasive and persistent as online tracking systems are, online tracking systems are imperfect, and many do not attempt to identify specific individuals by name. Thus, some consumers can evade identification.

Payment systems, on the other hand, necessarily require identification of the consumer. There is no mainstream online payment mechanism that is anonymous, and, in fact, internet-bred payment systems such as PayPal and Google Wallet are less private than the in-store use of credit cards.[215] Moreover, making customers pay for services does not guarantee that less tracking would occur. For

213. 16 C.F.R. § 251.1(b)(1) (2013).
214. *Id.* § 310.4. *See generally* Prentiss Cox, *The Invisible Hand of Preacquired Account Marketing*, 47 HARV. J. ON LEGIS. 425 (2010).
215. *See* Hoofnagle et al., *supra* note 125.

instance, paying subscribers to the *Wall Street Journal* are still monitored by over half-a-dozen network trackers. A flat ban on free offers could produce a market in which consumers are charged and reliably identified, in addition to being profiled by advertising firms.

C. The FTC's Current Notice Approach

On first blush, the current FTC Guide offers consumers little protection in transactions for personal information. It is concerned with disclosure to consumers, and in particular, with direct cost recovery. Furthermore, the so-called Mead Paradox allows free offers to be explicitly conditioned on a financial obligation. One might therefore conclude that a company's provision of a simple privacy notice would fulfill the FTC Guide's requirements.

We disagree and suggest that the current FTC Guide still carries some bite. It does treat free offers as presumptively deceptive. Moreover, existing market research provides a basis on which the FTC could determine that reasonable consumers are generally misled by free transactions for personal information because they mistakenly assume that privacy policies provide strong legal obligations. The FTC Guide could cure this misconception by mandating, for instance, a notice at the time the transaction occurs that the consumer's personal information is the basis of the bargain and that such information may be used for tracking or other secondary purposes. Such a just-in-time notice would alert the user and potentially trigger greater investigation into the site's practices. At that point, FTC oversight would cease. The organization's role is not to ban transactions, but rather to protect consumers by removing inefficiencies and other impediments to a competitive marketplace. The consumer alone would then have to decide whether to accept or reject the bargain.

D. The FTC Could Require Providers of Free Services to Set a Price

Recall that some FTC cases concerned businesses that offered some service free without ever setting a price for it. For instance, in *In re Carpets R' Us, Inc.*,[216] the FTC required a carpet seller to establish a price before offering free installation. Firms that do not set a price for free services simply directly recover costs through increasing the price of other goods, which is not permitted under FTC precedent.

216. 87 F.T.C. 303, 340 (1976).

Requiring a set price for free services could create a new market alternative for users. If free services, such as social-networking sites, set an explicit price, such as the average price per user or the average price per paying user, users could choose to pay for such services and enjoy certain advantages. At a minimum, paying users would enjoy greater legal protections under consumer protection laws. On the other hand, unless anonymous payment systems are developed, paying would reliably identify the user to the business.

Recall that under Facebook's current revenue figures, the average user provides just under $13 of value each year.[217] Many consumers may be willing to pay this amount, or even more, in order to enjoy the service without advertising and tracking. Of course, that bargain would have to be explicit; otherwise firms such as Facebook may both collect payment and profile users.

Given that the business model of Facebook and several other social-networking services is based on the disclosure of personal information to third parties, however, such firms might have the incentive to limit the number of consumers whose privacy the firm is legally obligated to safeguard. Such firms might therefore charge an unrealistically high price for privacy in order to deter customers from paying and thereby retain the freedom to track and transfer personal information. On the other hand, the exercise of having to set a price could begin to signal to consumers the firms' perceived value of the consumer's personal information, and markets might react to this information. That is, a high price for service could draw competition to monopolistic markets, and competing firms might start siphoning off consumers by offering lower prices. More likely, however, existing firms would set the value of personal information unrealistically low and then continue to track and profile users unless and until sanctioned for doing so.

Despite this discussion, the setting of a price is not a panacea as it ignores the ex post costs of the transfer of consumer information. In fact, transaction cost economics considers price to be a negligible factor and argues instead that institutions should focus on ex post costs in designing an effective regulatory regime.

E. Other Remedies Suggested by TCE

Our TCE approach does not embrace the argument that free offers should be flatly prohibited. Instead, TCE suggests reform of the structures governing transactions in online markets to increase efficiency for consumers individually and in aggregate.

217. *See supra* notes 84, 147 and accompanying text.

TCE remedies aim to align the interests of the parties, safeguard against bounded rationality and opportunism, and minimize the contractual hazards parties experience ex post. Remedies increase efficiencies when, after accounting for implementation costs, the enactment of the remedy reduces aggregate transaction costs. Policymakers should therefore focus on transaction costs, but also enforcement costs and characteristics—a primary element of implementation costs—in crafting a remedy. Policymakers should also limit their pursuits to only those remedies that would be institutionally feasible; a scenario made plausible when the remedies proposed have already been implemented in analogous circumstances for markets based in networked infrastructures. Whatever the ultimate remedy, governing institutions should conduct pilot studies and analyze statistically relevant evaluations of costs experienced by consumers and firms.

Although the problem presented herein is impacting consumers disproportionately, remedies cannot be one-sided. Remedies that dampen thriving markets are not remedies at all. Rather, remedies should starve out the market-oriented activities that press up online transaction costs and threaten consumer confidence. In short, remedies should merely seek to place business risks more firmly in the hands of firms.

Firms that have a product that they wish to sell to consumers online, as in the case of freemium business models, are burdened with the need to allow potential customers to sample their products free of charge. For consumers of free products to avoid transaction costs, they must be given the option of remaining anonymous to the online firm offering the product. Even $0.01 would constitute payment, transforming the free rider into a paying customer and obligating the customer to provide the personal information necessary to support mechanisms of payment. Firms may argue that the tracking of free riders is necessary to convert free riders to paying customers. In reality, no such necessity exists. What the business model actually demands is no different from physical examples of loss leaders. Firms need the ability to give people a chance to sample the product. If people enjoy the product and tell others, the firm receives the benefit of marketing. If sampling raises enough demand to result in payment, for the same product, in whole or in part, or a premium version of the product, the firm may see returns on the investments made in its product.

It is difficult for firms to argue that any tracking of free riders is a business requirement, even though current business models have firms making substantial expenditures to support free riders. For instance, Disney's Club Penguin could substantially reduce policing, moderation, and customer support costs, while still allowing free riders to enjoy the service, through two mechanisms. First, it could limit the form of chat available to free riders to drop down menus of premade

statements and thereby remove the possibility of inappropriate conduct by an incoming user. Second, it could randomly assign premade names to free riding users' penguins or limit such users' penguin name choices to only preset names contained in drop down menus. These two changes would substantially reduce, if not eliminate, the ongoing costs of monitoring the behavior of free riders in the game. Additionally, it is technologically feasible for a free rider to enjoy most of the play of an online game like Club Penguin without permanent, personally identifiable tracking. Essentially, this would mean that the firm would not save the free rider's progress made in the online game. Thus, at the time the free rider closes his or her browser, any progress would be permanently deleted.

Firms whose main business proposition is to use the information free riders provide generate a somewhat different set of contractual hazards for consumers. The problem is that firms like Google, Facebook, and YouTube, whose business is to provide a conduit or technique for manipulating and distributing content that is produced by consumers, essentially become de facto owners of that content, free to transfer or trade that information with third parties or other firms in multiple lines of business.[218] A solution might therefore entail the recognition of ownership rights for consumers as producers of the subject matter these firms depend on. Allowing consumers to retain ownership rights opens the possibility that consumers could then negotiate agreements to share, distribute, or monetize the information they provide. Under ideal circumstances, market forces would produce new arrangements that would give the consumer more ability to bargain for the terms of the deal ex ante, monitor the firm ex post, and seek damages in cases of breach. Thus, consumers would become partners in the provision of these services, services that are fundamental to the business model of these firms.

One step toward granting consumers this bargaining power would be to prohibit firms from embedding the right to transfer the consumer's personal information to third parties in terms of service or privacy policies. Third parties seeking a consumer's personal information would likely, were this remedy im-

218. Ronald Coase has advanced a theory regarding the relationship between three factors affecting market efficiency—the assignment of rights to consumers or firms, respectively, the collective costs to consumers of organizing in order to obtain bargaining power vis-à-vis firms, and the value of production. As Coase argues:

> [T]he initial delimitation of legal rights does have an effect on the efficiency with which the economic system operates. One arrangement of rights may bring about a greater value of production than any other. But unless this is the arrangement of rights established by the legal system, the costs of reaching the same result by altering and combining rights through the market may be so great that this optimal arrangement of rights, and the greater value of production which it would bring, may never be achieved.

Coase, *supra* note 107, at 16.

plemented, have to appeal to the consumer for the right to access and use the consumer's personal information. The market effects of this arrangement could include a shift in bargaining power from the third party to the consumer. If such a shift were to occur, competition for consumer information would be evidenced by firms' efforts to differentiate themselves by offering consumers something in return for information, for example by appealing to the consumer's desire for ex post reporting of how the third parties are using the personal information and what they are doing to keep this asset secure. As is now common with respect to health records, third parties might also be required to report breaches in security. Such records could be used to generate reports to help consumers differentiate between firms both ex ante and ex post.

Because these two business models are not mutually exclusive, however, the remedies for each should be implemented simultaneously. Thus, free riders of freemium businesses would not be personally identifiable or tracked, and free social-networking services would not be allowed to trade the products consumers develop without the consumers' partnership. In the case of Zynga games on Facebook, Zynga would not have access to the personal information of Facebook consumers or their friends, but Zynga could provide an online storefront able to offer Facebook customers anonymous free trials of their games. When free riders became interested in monetizing, they could bargain only to monetize their own personal information, and not that of their friends.

In earlier work, we proposed that consumers should possess portability and deletion rights, which would afford them greater ability to exit from social-networking services.[219] Such remedies would allow the consumer to extract from the site information provided by the consumer and require the site to delete the information.

The aims of these remedies are simple: They merely force the market to respond to consumer preferences and demands for a modicum of privacy in personal information. Such recognition of privacy would lower transaction costs for consumers while also recognizing the business imperative firms have to allow online consumers to sample freemium products and to continue to produce content on social-networking services.

IV. ADDRESSING COUNTERARGUMENTS

While the aims of these TCE remedies may be simple, their far-reaching implications may also touch many transactions that have become popular in the

219. Whittington & Hoofnagle, *supra* note 36, at 1366–68.

marketplace. Here we address several counterarguments concerning intervention in free transactions.

A. The Problem of Monetizing Personal Information

One might object that this proposal explicitly converts personal information into currency. Some, especially those hailing from cultures recognizing privacy as a human right, might object in principle to such an approach. But this objection has little traction in the United States, which has generally not framed privacy as a human right but rather as freely alienable property.

Pamela Samuelson, in her 2000 work, *Privacy as Intellectual Property?*, explores the potential of a more robust property rights approach for personal information.[220] Samuelson recognizes that a property rights approach had certain appeals, such as the potential for individuals with heterogeneous preferences to negotiate for privacy and for firms to internalize more of the societal costs flowing from excessive collection of data.[221] But she concludes that a property rights regime, in practice, would fail to meet privacy goals. This is because buyers of personal information would prefer free alienability of data—just as buyers are typically able to alienate tangible goods freely—while consumers would wish to have restraints on alienation. Samuelson argues that this problem might be remedied in a property-rights regime through default contractual rules and a licensing scheme for personal data that would restrict free alienation of data.

One could see Samuelson's objection mirrored in the ubiquitous use of standard-form terms of service, in which users either accept broad agreements allowing liberal use of personal information or are denied access to the service entirely.[222] Indeed, the market has itself converted personal information into property and treats such information as a specific asset in company valuations.[223] Consumers are now participating in a market in which they trade their attention and personal data for services, but, unlike traditional payment, these transactions lack the consumer protections described above.

Largely, our prescriptions are compatible with Samuelson's approach, in that they would formalize obligations on data collectors and extend rights to limit alienability and to exit through portability and deletion rights. Additionally, our prime recommendation that users of free services be recognized as consumers for

220. Pamela Samuelson, *Privacy as Intellectual Property?*, 52 STAN. L. REV. 1125 (2000).
221. *See id.*
222. *See generally* MARGARET JANE RADIN, BOILERPLATE: THE FINE PRINT, VANISHING RIGHTS, AND THE RULE OF LAW (2013).
223. *See* discussion *supra* Part I.D.

purposes of consumer protection law would put free service users on the same footing as those who paid with currency.

Other commentators have suggested more radical interventions, in particular to address free business models. Jaron Lanier argues that it "is all too easy to forget that 'free' inevitably means that someone else will be deciding how you live."[224] Lanier identifies a tension in the commercial practices of many internet services, noting that while they promote sharing and openness of user data and the utopian idea of an informal, barter economy, these same firms "channel much of the productivity of ordinary people" and concentrate "old-fashioned wealth for themselves."[225] Lanier proposes that "digital dignity" would include a right to compensation based on any data derived from an individual.[226] Lanier's work suggests that the only way to address the inequities of the information economy would be for consumers to be fully engaged in the commercialization of identity.

Our proposals do not equate personal information with currency, nor do they set forth a mechanism to treat personal information like a currency. Instead, we have proposed a different governance structure for these transactions, one that recognizes the user as a consumer and puts the consumer on more equal footing with firms.

B. Interference in Evaluation of Mergers and Acquisitions

Some commentators have argued that the remedies proposed here would complicate the merger and acquisition process. If the consumer right to delete makes services abandonable, this right could dramatically change the valuation of a company. It is foreseeable that cancellation and deletion requests will occur during acquisition, particularly when the acquiring company has a negative or untrustworthy reputation. How could the market possibly value such deals if consumers at any time could force deletion of the very assets being acquired?

One recent example of this problem concerns the acquisition of Instagram, a very popular online photo-sharing service, by Facebook for $1 billion.[227] Although people primarily regard Facebook as a social network, it offers a very large and rich set of features for photo sharing,[228] much like Instagram.

224. JARON LANIER, WHO OWNS THE FUTURE? 15 (2013).
225. *Id.* at 57.
226. *Id.* at 20.
227. Silvia Killingsworth, *Visual Candy: The Rise of Instagram*, NEW YORKER, Apr. 10, 2012, http://www.newyorker.com/online/blogs/culture/2012/04/instagram-and-facebook.html.
228. *See* Doug Beaver et al., Finding a Needle in Haystack: Facebook's Photo Storage 1 (2010) (unpublished manuscript), *available at* http://static.usenix.org/event/osdi10/tech/full_papers/Beaver.pdf (claiming that the Facebook service stores 260-billion photographs).

Instagram—like the companies that conceived the independent record label, or the slow-food restaurant—was one of many companies that sought to distinguish itself from its competition by providing a different experience than competitors. Instagram was considered a cool alternative to the "digital panopticon" of Facebook,[229] and, soon after the acquisition was announced, some users revolted and developed guides to delete photographs from the service.[230]

Generally speaking, and specifically in the case of Instagram-Facebook, we think it would promote both consumer protection and efficiency if consumers possessed the bundle of rights proposed in this Article. The Instagram-Facebook merger had the attributes of the classic free bait and switch critiqued in this Article: Users were lured to a service because of its goodwill and other qualities, only to be surprised later when that service was purchased by the very competitor consumers had wished to avoid. Suddenly, the undesirable firm came into possession of the users' personal information and other material uploaded to the competitor's site, and the information thereby became subject to shifting privacy policies.[231]

The ability of consumers to delete and take data to another service could also provide a more accurate valuation of the purchased firm. The market would have to incorporate the idea that some users will defect, invoking legal rights to take data with them. In fact, this concept reflects what currently occurs in such purchases, as some users simply stop visiting the service after an objectionable acquisition. A right to delete may provide additional incentives to both evaluate the risk of abandonment and to avoid the surprise that so many users experience when they subscribe to free services.[232]

C. Curbing Free Offers Is Bad for Privacy

Some critics contend that, to the extent our prescriptions curtail free offers, alternative transactions may involve more collection, use, and disclosure of per-

229. *See id.*

230. *See, e.g.*, Sarah Kessler, *Deleting Your Instagram Account? Here's How to Save Your Pics*, MASHABLE (Apr. 9, 2012), http://mashable.com/2012/04/09/deleting-instagram-account-save-pics.

231. Shortly after Instagram's acquisition by Facebook, the firm announced changes in its terms of service that would allow users' photographs to be used in advertising. *See* Tomio Geron, *After Backlash, Instagram Changes Back to Original Terms of Service*, FORBES, Dec. 20, 2012, http://www.forbes.com/sites/tomiogeron/2012/12/20/after-backlash-instagram-changes-back-to-original-terms-of-service. Facing a user backlash, Instagram reverted to its original policy. *See id.*

232. The right and ability to easily delete or port data from firm to firm would likely effect a shift in firms' priorities towards cultivating a positive reputation in the eyes of consumers. These rights would also cultivate mobility of consumer data throughout the online marketplace and between online firms in a way that would resemble the movement of financial investments among firms as we see today in, for example, the stock market.

sonal information. This result would occur because exchanges involving currency online almost always involve perfect identification. Banks and other entities involved in payment are under obligations to identify their customers reliably,[233] and thus, practically speaking, the average consumer cannot pay online anonymously. Our regime could therefore change internet services from a free marketplace, with consumers identified based on self-supplied (and often fabricated) data, to one in which consumers are identified with great reliability.

The objection that payment offers an opportunity to identify users is generally valid. But on the other hand, these services possess many tools to identify users, many of which users cannot detect. First, Google and Facebook have real-name policies and use algorithms to detect fabricated information.[234] Second, services have rich data logs that include users' IP addresses, which are essentially the Internet's version of the postal return address. IP addresses reveal user location and are an essential element in internet investigations. Other logs, even transaction information, can paint a clear picture of an individual's identity and relationships. Third, many services buy enhanced data on users—data that the user is otherwise unwilling to provide that can reveal identity.[235]

Practically speaking, these services can and do identify their users, even when payment is not present. Our prescriptions, to the extent they shift transactions from free to paid exchanges, will increase users' understanding of the fact that firms have personally identified them, as well as give the user more consumer rights.

D. Payment Does Not Guarantee More Privacy

Finally, some have argued that these prescriptions labor under a false assumption: that paid services come with more privacy in practice than free services. While paid applications may have less display advertising, they may still siphon consumer information without the users' consent.

There is inadequate empirical research to answer the question definitively whether paid services differ dramatically on information collection and use. Reports detailing a small study of the ten most popular applications in the Google

233. *See, e.g.*, 31 U.S.C. § 5318(l) (2012).

234. *See* Harry McCracken, *Google+'s Real-Name Policy: Identity vs. Anonymity*, TIME, Sept. 22, 2011, http://www.time.com/time/business/article/0,8599,2094409,00.html.

235. *See, e.g.*, *Reverse Email Append*, MELISSADATA, http://www.melissamobile.com/dm/data-services/reverse-email-append.htm (last visited Dec. 19, 2013) (providing a service that allows website operators who possess users' email addresses to discover their home addresses and phone numbers).

Play marketplace found that free and paid applications were similarly invasive.[236] But a larger study of 1.7 million applications conducted by Juniper Networks found that free applications were much more likely to collect personal information from users. Specifically, Juniper found that "free apps are 401 percent more likely to track location and 314 percent more likely to access user address books than their paid counterparts."[237]

Whether or not paid services differ from free ones, the proposals in this paper will begin to uncover objectionable privacy practices through transparency mandates, limits on alienation of data, and rights to exit. Under our approach, applications that secretly siphon off data could not advertise as free, which means that they would have to either charge a price or state more clearly that personal information is the basis of the bargain. In short, the remedies suggested by transaction cost economics will begin to erode the most objectionable data practices.

CONCLUSION

Free has become the default price of internet services. But focusing on the price rather than the cost of free services has led consumers into a position of vulnerability. By virtue of paying for services with personal information, users may not even qualify as consumers under consumer protection laws. More broadly, the framing of transactions as free makes it very difficult for consumers to evaluate the fairness of information practices associated with these services. We have therefore suggested several remedies with a goal of reforming free transactions in order to highlight their true costs and thereby initiate reforms to reduce such costs.

236. John P. Mello, Jr., *Money Can't Buy Privacy in Google Play Store, Study Shows*, PC WORLD (Apr. 15, 2013, 10:27 AM), http://www.pcworld.com/article/2034653/money-cant-buy-privacy-in-google-play-store-study-shows.html.

237. Daniel Hoffman, *Exposing Your Personal Information—There's an App for That*, JUNIPER SECURITY & MOBILITY NOW (Oct. 30, 2012, 2:54 PM), http://forums.juniper.net/t5/Security-Mobility-Now/Exposing-Your-Personal-Information-There-s-An-App-for-That/ba-p/166058.