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Does Anyone Read the Fine Print? Consumer Attention to Standard-Form Contracts

Yannis Bakos, Florencia Marotta-Wurgler, and David R. Trossen

A cornerstone of the law and economics approach to standard-form contracts is the informed-minority hypothesis: in competitive markets, a minority of term-conscious buyers is sufficient to discipline sellers from using unfavorable boilerplate terms. This argument is often invoked to limit intervention or regulate consumer transactions, but there has been little empirical investigation of its validity. We track the Internet browsing behavior of 48,154 monthly visitors to the Web sites of 90 online software companies to study the extent to which potential buyers access the end-user license agreement. We find that only one or two of every 1,000 retail software shoppers access the license agreement and that most of those who do access it read no more than a small portion. Since the cost of comparison shopping online is so low, the limiting factor in becoming informed thus seems not to be the cost of accessing license terms but reading and comprehending them.

1. INTRODUCTION

Standard-form contracts, often called fine print or boilerplate, are the most common type of economic contract. They apply to untold billions of commercial transactions per year. In a typical scenario, a buyer pur-

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chases a good or service and is presented with a preprinted form contract with terms pertaining to dispute resolution, remedies for product failure, and warranties, among others, with little opportunity to negotiate the terms. Examples appear everywhere and can include safety disclaimers noted on the backs of sporting tickets, warranties packaged with consumer goods, privacy policies and terms of use on Web sites, and photocopying restrictions appearing in the front matter of this journal. Every reader of this paper has entered into thousands of standard-form contracts, sometimes unknowingly.

Academics, courts, and policy makers have long debated the degree to which standard-form contracts should be enforced and whether their content or disclosure should be regulated. All sides in this debate realize that, in many circumstances, a majority of buyers do not read fine print. For many buyers, too much time is required to read and give meaningful assent, and fine print can be too difficult to understand or may seem unimportant. The central economic question is whether the fact that a majority of buyers enter standard-form contracts with this imperfect information results in a market failure: if buyers do not factor contract terms into their purchase decisions, sellers lack incentives to provide anything more than the minimally required legal protections.¹

Defenders of freedom of contract have generally rejected intervention by relying on reputational constraints and the informed-minority argument. In this paper, we focus on this latter argument, which derives from some classic law and economics contributions. The articulation by Schwartz and Wilde (1979) of the informed-minority argument in this context is a specific application of work on imperfect information by

the 2009 Harvard-Texas Conference on Commercial Law Realities, the 2009 New York University colloquium on Law and Economics, the 2009 University of Virginia School of Law Legal Studies Workshop, the 2009 George Mason University–Microsoft conference Innovation: Online Markets versus Traditional Markets, the University of Kansas Law School, the 2009 Hebrew University of Jerusalem conference Contract Law: Interdisciplinary Perspectives, the 2009 Georgetown University Law Center Workshop in Law and Economics, the 2009 colloquium series at the University of Alabama School of Law, the 4th annual Conference on Empirical Legal Studies, the 2010 Fordham University Law and Information Society Faculty Workshop series, the 2010 Swiss Federal Institute of Technology (ETH-Zurich) Workshop and Lecture Series in Law and Economics, and the 20th annual meeting of the American Law and Economics Association. Dennis E. Hermreck, Daniel Priest, Robert Taylor, Michael Tonkinson, and Joel Willcher provided excellent research assistance.

1. For a comprehensive review of the factors that might contribute to consumer information problems and subsequent market failures, see Salop (1976) and Beales, Craswell, and Salop (1981).

Spence (1977) in the context of product liability and by Salop and Stiglitz (1977) in the context of price dispersion and search. Schwartz and Wilde (1979) argue that sellers will not necessarily offer one-sided terms even when the majority of buyers do not read standard-form contracts. In their model, nonreading buyers benefit from an informed minority whose willingness to pay for the product is sufficiently sensitive to the quality of the standard terms. When all buyers have the same taste for quality and sellers are unable to discriminate between reading and nonreading buyers, sellers will offer the terms preferred by all buyers. This competitive-markets logic has often been used to resist regulation and to advocate rules limited to facilitating search by those aspiring to join the informed minority (see, for instance, Baird 2006; Gillette 2005; Beales, Craswell, and Salop 1981).

Although the informed-minority argument has been influential in the law and economics literature, it has not been studied much empirically. While it is widely agreed that standard-form contract readers are in the minority, the literature offers no evidence of whether this minority remains large enough to plausibly enforce efficient terms, as assumed by some theorists and courts. In fact, we are not aware of any systematic studies of the extent to which consumers become informed about contract terms. We present large-sample evidence on the extent to which buyers actually do read standard-form contracts in a specific setting, and we identify factors that affect the probability of readership.

In particular, we examine the extent to which potential buyers of software read end-user license agreements (EULAs). For a sample of software companies who offer products online, we use potential buyers' "clickstream" information (that is, the series of uniform resource locator [URL] information for the page visited while browsing the Web and the precise timing of such visits) to study their readership of the EULA. We tracked 48,154 visitors to the Web pages of 90 software companies over a period of 1 month and recorded their detailed browsing behavior. For each such user, we observe the exact sequence of Web page addresses (URLs) accessed in a particular visit and the time spent on each page. The data also include the demographic characteristics of each user, such as age, gender, income, and geographical location. Our main finding is that regardless of how strictly we define a shopper, only one or two in 1,000 shoppers access a product's EULA for at least 1 second, which yields an informed minority of .2 percent that is orders of magnitude smaller than the required informed-minority size in realistic market settings and in theoretical examples suggested in the literature.

To put our findings in economic perspective, we perform a simple calibration exercise. We estimate the fraction of informed shoppers needed to induce sellers to offer good terms in the software market. We estimate the marginal cost of providing one pro-buyer term, maintenance and support, and find that sellers would find it more cost-effective to lose all informed buyers (that is, under the conservative assumption that each would decline to buy if the given term is not offered) than to offer this one term. This conclusion would likely persist for a fraction of informed buyers that is one or two orders of magnitude higher than .2 percent.

We then focus on the factors affecting the probability that a EULA will be accessed. We find that shoppers are more likely to access EULAs of smaller companies or companies that offer potentially suspicious products, such as freeware. The few shoppers who choose to become informed might be rationally deciding to ignore the EULAs of larger, more established companies, relying instead on company reputation or familiarity. We also find that older and higher-income shoppers are more likely to access EULAs. This may be because these consumers have lower search and reading costs (for example, because they have a lower opportunity cost for their time, or because they are more educated and thus find it easier to read contract terms). Thus, a higher fraction of consumers read EULAs when expected benefits are likely to be higher or reading costs are likely to be lower, which suggests that the fraction of informed consumers is limited by the high search and reading costs of standard-form contracts.

Our main contribution is the first large-sample study of the extent to which consumers actually inform themselves of important rights and obligations before entering a standard-form contract. We find that the fraction of consumers who read such contracts is so small that it is unlikely that an informed minority alone is shaping software license terms. We note, however, that the absence of an informed minority does not immediately imply that EULA terms will be inefficiently biased in favor of sellers. Some sellers, at least prominent ones, could be disciplined by other mechanisms, for example, the aforementioned concern for their reputation if onerous terms might eventually be discovered. Furthermore, shoppers may assume that no matter what the EULA terms state, they will be protected by the courts and thus will rationally choose not to become informed about the EULA terms. In other words, it may be rational not to read; what our evidence suggests is that EULA terms in our setting are not being policed by an informed minority of readers.

To summarize, while other factors may discipline sellers from offering adverse EULA terms, we show that the informed-minority hypothesis, the most widely applied argument for the efficiency of standard-form contract terms, does not seem compelling here. Our findings call into question the promise of policies to ameliorate potential market failures by requiring increased or mandatory disclosure, particularly in a setting where the informed minority is most likely to arise because of the low cost of online comparison shopping.² Future empirical work should focus on readership in other contexts to establish whether an informed minority might exist, as well as the potential validity of alternative mechanisms to discipline sellers in our context.

Section 2 offers theoretical and empirical background on the informed-minority hypothesis. Section 3 explains our methodology, Section 4 presents our data, and Section 5 discusses the results. Section 6 concludes.

2. FORM CONTRACTS AND COMPETITION FOR INFORMED BUYERS: BACKGROUND

Despite the transaction-cost-reducing benefits associated with the use of form contracts, such as reduced drafting and negotiation costs, academics and policy makers have debated their fairness and the desirability of their enforcement. Concern for consumer welfare has resulted in numerous articles, laws, and initiatives to regulate these contracts. For example, in addition to existing contract law doctrines to protect buyers from abusive terms, such as unconscionability and unfair surprise, several state consumer laws prohibit the use of forum selection clauses and disclaimers of implied warranties in consumer contracts (see, for example, *Gatton v. T-Mobile USA, Inc.*, 152 Cal. App. 4th Supp. 571, 585 [1st Dist. 2007]; *Fidelity & Deposit Co. v. Gainesville Iron Works, Inc.*, 125 Ga. App. 829 [1972]; Idaho Code sec. 29-110; N.C. Gen. Stat. sec. 22B-3; Mont. Code 36 sec. 18-1-403). Federal laws such as the Truth in Lending Act (15 U.S.C. 41) and the Magnuson-Moss Warranty Act (15 U.S.C. 2301) seek to decrease reading and search costs by requiring standardized disclosure of mandated terms. More recently, as can be seen in Lemley (2006), there has been heated debate about whether online contracts, such as terms of use, privacy policies, and

2. For an analysis of whether increased contract disclosure is associated with increased readership, see Marotta-Wurgler (2012). See also Ben-Shahar and Schneider (2011).

software license agreements, should be enforceable or subject to mandatory disclosure rules or provisions.

2.1. The Informed-Minority Hypothesis

The concern that standard-form contracts are likely biased toward drafters is based on the view that many buyers do not read or understand the terms. Salop and Stiglitz (1977) explore the conditions under which a market with consumers who are heterogeneous in their willingness and ability to become informed about product prices might reach a perfectly competitive price equilibrium and find that even in the presence of many uninformed consumers, a market can yield a competitive equilibrium if enough informed consumers shop for the lowest price.

In a widely cited contribution to the theory of standard-form contracts, Schwartz and Wilde (1979) extend this argument to settings in which consumers vary in their ability to become informed about contract terms. They show that if a sufficient number of buyers are informed about the price and contract terms of a given product, sellers who cannot discriminate between buyer types will offer the product with efficient terms at a competitive price to all buyers, as the cost to the seller of losing a critical mass of informed consumers outweighs the benefits of offering inferior terms to the uninformed inframarginal consumers. Imperfect information alone is thus not sufficient to warrant market intervention. This conclusion has become the cornerstone of the law and economics view of standard-form contracts. For example, Priest (1981), Baird (2006), and Hillman (2006a), among others, have repeatedly relied on the informed-minority argument to support freedom of contract. Instead of intervention, consumers should be given a meaningful opportunity to become informed about the terms prior to purchase.

Others have expressed doubts about this mechanism. Katz (1990) posits that not reading may be rational, given the low probability of adverse events triggering unfavorable clauses. Bar-Gill (2004) and Gabaix and Laibson (2006) question the underlying assumptions of the informed readers and offer behavioral accounts of a failure to read and understand terms. Eisenberg (1995) and Goldberg (1997) argue that sellers might find it more profitable to take advantage of nonreaders than to cater to readers. Ben-Shahar (2009) argues that because nobody reads fine print, regardless of its accessibility, rules requiring increased disclosure are useless, if not dangerous.

The informed-minority argument is reflected in contract doctrines and current proposals to increase consumer protection in mass-market trans-

actions online that stress that consumers must be given a meaningful opportunity to read.³ For instance, in *Principles of the Law of Software Contracts*, the American Law Institute (2010, p. 117) seeks to “promote reading and the opportunity to read terms” to alleviate market failures. Its goal is to reduce the cost of accessing the contract to promote a sufficiently numerous informed minority of buyers.

While this paper limits its scope to assessing whether readership levels are consistent with the informed-minority hypothesis, we note that other mechanisms may incentivize sellers to offer terms preferred by buyers even if none read. Sellers might be constrained by reputation or the threat of litigation, or they might offer one-sided terms to all consumers but might relax them to accommodate reasonable complaints (see Gillette 2004; Bebchuk and Posner 2006). In the case of experience goods or repeat purchases, buyers who do not read terms might ultimately become familiar with the contents of boilerplate. Our data cannot speak to the relevance of these mechanisms.

2.2. Prior Evidence

Despite the theoretical prominence of the informed minority, there has been little empirical investigation of its validity, presumably because observing readership is difficult. However, there is some related survey evidence. Hillman (2006b) surveys 92 contracts students and finds that only 4 percent of those who purchased products online claim to read standard-form contracts as a general matter. Becher and Unger-Aviram (2009) survey 147 students and find that 60 percent of respondents claim that they skim or read parts of a standard-form contract before entering a transaction. Plaut and Bartlett (2012) survey 182 undergraduates and find that about 80 percent claim not to read contracts and that much of the remainder claim to skim them. These surveys are suggestive but somewhat limited; they are based on self-reported behavior or hypothetical commercial scenarios, and the survey subjects are not representative; for example, in some cases they include law students who will write boilerplate for a living.

Other studies show that standard-form contract terms are less one-sided in favor of sellers than might be possible if buyers were completely

3. A notable case reflecting this view is *Specht v. Netscape Communications Corp.* (306 F.3d 17 [2d Cir. 2002]), in which the courts refused to enforce an arbitration agreement made available via a browse wrap (using hyperlink somewhere on the seller’s Web site) a few screens later because it did not provide sufficient notice. Ben-Shahar (2009) offers a comprehensive evaluation of this doctrine.

uninformed and thus are consistent with the existence of the informed minority as well as other disciplining mechanisms. Priest (1981) studies 62 product warranties and finds that they are not biased toward sellers but rather reflect the relative ability of buyers and sellers to prevent and insure against loss. Marotta-Wurgler (2007, 2008) analyzes the terms of 647 online EULAs and shows that while almost all of them are more restrictive than the relevant default rules, they do not all converge to the legal minimum. In a study of contracting practices by online retailers, Mann and Siebeneicher (2008) find that few sellers offer excessively one-sided contracts.

3. RESEARCH FRAMEWORK

We explore the presence of an informed minority of buyers by studying the browsing and shopping behavior of online consumers. In particular, we tracked the behavior of visitors to the Web sites of 90 software companies, and we examine the rate at which shoppers choose to become informed about the EULAs that govern the featured software.

Online software purchases provide an apt setting in which to look for the informed minority. First, while nonprice features, such as associated contractual rights and restrictions, are important for all types of products, they are a particularly significant consideration for information goods such as software, because terms form an integral part of the way the product is or may be used. Second, some of the terms in EULAs have been the subject of litigation in the past decade. (See, for instance, *Mortenson Co. v. Timberline Software Corp.*, 998 P.2d 305 [Wash. 2000]; *Davidson & Assoc. v. Internet Gateway*, 344 F. Supp. 2d 1164 [D. Mo. 2004]). For instance, as end users increasingly rely on software to perform a variety of routine tasks and critical functions, damages from software failure can be significant. Third, shopping for competing goods and the terms that govern them is cheap and easy online relative to most commercial settings. Search costs are also low (Bakos 2001). To the extent that the informed minority exists, this is among the settings where we are relatively likely to find it, especially given our access to clickstream data. Finally, several recent debates on legal reform in standard-form contracts focus on electronic contracts in general and software contracts in particular. Our study of the informed minority in online software markets places us at the center of these debates.

To empirically investigate the presence and size of the informed minority, we classify visitors to the Web sites of the companies in our

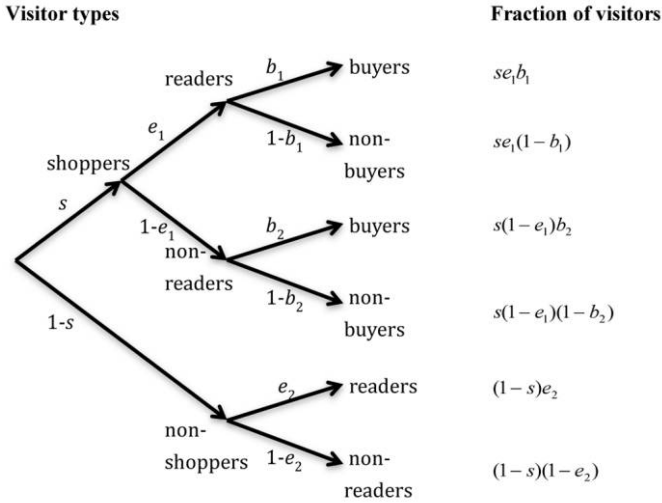


Figure 1. Empirical framework

sample, described below, as potential buyers and those visiting for other reasons, such as looking for user forums or troubleshooting information. We denote by s the fraction of potential buyers (shoppers); nonshoppers make up the remaining fraction $1 - s$. We denote by e_1 the fraction of shoppers and by e_2 the fraction of nonshoppers who read the online EULAs. Finally, we denote by b_1 the fraction who purchase the product (buyers) among shoppers who read the EULA and by b_2 the fraction of buyers among shoppers who do not read the EULA. This framework is depicted in Figure 1. In this setting, the informed minority corresponds to the fraction e_1 of shoppers who read the online EULA.⁴

4. It is possible that, for some shoppers, accessing the end-user license agreements (EULA) will not affect their probability of buying the product. For instance, some shoppers either may not know what a EULA is or may discover after accessing the EULA that they are not capable of comprehending its language, or shoppers may access the EULA accidentally or out of curiosity. To the extent that such accesses of the EULA do not make a shopper part of the informed minority, e_1 will overestimate the fraction of shoppers who are part of the informed minority. We can explore the significance of this to some degree by studying the time spent on the EULA page by those who access it. On the other hand, because we do not consider other ways in which shoppers might become informed about the terms (for example, by word of mouth or repeat purchases), there is a possibility that e_1 will underestimate the size of the informed minority. We comment on the likely significance of this effect in Section 5.

Next we estimate the number of visitors in our sample for each of the six categories in Figure 1. We estimate the number of readers and nonreaders among visitors classified as buyers, shoppers, and nonshoppers. We use access to a EULA page for more than 1 second to identify readers. This creates an upward bias of our estimate of the truly informed readers in that some accesses are accidental, inconsequential to the buying decision, accessed so briefly that little content could have been grasped or read but not understood. We use initiation of a secure checkout process to identify buyers and other contextual information to distinguish shoppers from nonshoppers.

We can break down readers into se_1b_1 readers who buy and $se_1(1 - b_1)$ readers who do not buy. In addition, $s(1 - e_1)b_2$ buyers are not readers, and $s(1 - e_1)(1 - b_2)$ shoppers neither read nor buy. A priori, we expect that few nonshoppers read EULAs, and thus we expect $(1 - s)e_2$ to be small. Finally, the fraction of nonshoppers who do not read EULAs is $(1 - s)(1 - e_2)$, which, as expected and as we confirm, is large. With these inputs, we can estimate the fraction e_1 of shoppers who constitute the informed minority, by writing this fraction as

$$e_1 = \frac{se_1b_1 + se_1(1 - b_1)}{se_1b_1 + se_1(1 - b_1) + s(1 - e_1)b_2 + s(1 - e_1)(1 - b_2)}.$$

We then analyze the seller's choice of which terms to offer, to assess whether our estimates are plausibly consistent with an informed-minority equilibrium.

4. DATA

Our large clickstream data set represents the browsing behavior of 92,411 U.S. households in January 2007. This data set was made available to us by a major online research company, which has recruited a representative panel of U.S. households that have agreed to install on their computers a data collection plug-in that records the URL address of each Web page visited. The data collected include the exact sequence of Web pages visited and the amount of time spent on each page. In raw form, this is a data set of significant size.⁵

The panel of households was selected to be demographically and geographically balanced and representative of the population of U.S.

5. Information was captured for 6,355,922 user sessions and 461,027,284 corresponding page views.

households with Internet access.⁶ The information captured in the raw data for each Web page visited by a panelist is coded with both a user identifier that anonymously but uniquely identifies each panelist and a session identifier that delimits each panelist's Web browsing into separate sessions. Additional information captured includes the URL of each Web page visited, the time that each Web page was accessed, the length of time spent on that page, whether that page was within a secure (that is, encrypted) connection, the Web server delivering the Web page, and a unique identifier for the company or division owning that Web server. The recorded page views compose the bulk of the data, but we were provided with useful additional files that include nonpersonally identifiable demographic information about the panelists and a corporate hierarchy identifying the parents, if any, of the divisions or companies that own the Web servers appearing in the data (for example, Office and Outlook are properly identified as companies or divisions having the same corporate parent: Microsoft).

4.1. Sample Construction

We consider the central standard-form contract in one important market. We study user visits to the Web pages of software companies that sell or distribute their products through their corporate Web sites and that make their EULAs available on their site for users to peruse at their option (prior to making any purchase decision). We use the data provider's classification of markets to identify visits to software companies only. We subsequently identify in our data two types of software companies that make their products available for online purchase or downloading: retailers and freeware providers. Retailers license their software for a price through their corporate Web site. Freeware providers offer their software for free to anyone wishing to download it; examples include browser toolbars and plug-ins.⁷ We are interested in observing

6. This data provider's panel is one of the largest representative media research samples in existence. During the period the data were collected, the sample of participants was defined using random-digit-dialing principles: the company selected a random set of phone numbers from all available residential numbers in the United States and attempted to recruit each for at most 15 times at different times of the day and on different days. The panel also included university students and individuals in the workplace. The company updated its demographic information regularly, had implemented various procedures to keep the panel updated, and ensured that tracking was unobtrusive to prevent any distortions in behavior.

7. We classify a company as a retail company if it offers its core or much of its software for sale, even if it also offers free software.

users' propensities to become informed about the terms of these two types of software.

For the purpose of having a sufficiently homogenous sample of sellers, we exclude subcategories such as vendors not making their products available for online purchase or downloading, peer-to-peer software providers, and Web hosting companies. We exclude companies with fewer than 50 unique visitors who viewed at least two pages during their visit; our interest is in users with intent or potential intent to purchase (shoppers), and users who view only a single page are less likely to have such intent. We identified 197 companies that satisfied the above conditions.

For each of these companies, we obtained the URLs of all EULAs available on the company's Web site. To find the EULAs, we visited each company's Web site and used manual browsing, Google searches within the Web site, and, if available, searches of the Web site provided by the company. In addition, we searched all page views in the clickstream data corresponding to these companies to identify possible EULA pages (for example, pages whose Web address contained the words "EULA," "legal," or "terms"), which we then investigated manually.

Some EULAs were presented as browse wraps—that is, they were posted as a hyperlink somewhere on the seller's Web site. We included all these companies because we can easily measure whether users voluntarily clicked on the EULA hyperlink.⁸ A minority of companies presented their EULAs as click wraps. This mode of presentation requires consumers to click on an "I agree" button acknowledging the EULA terms before they can purchase a product. There are two types of click-wrap sites. One type presents EULA terms via a hyperlink adjacent to the "I agree" button and thus requires an additional click to access the EULA. In this case, while all buyers are forced to acknowledge the EULAs, we can measure what fraction takes the extra step and actually clicks on the contract link, which is a necessary step in becoming informed about the terms. The other type presents the terms in a scrollable

8. A possible concern is that these contracts are not prominent enough to be binding. As noted in Section 2.1, courts have been reluctant to enforce browse wraps. However, this mode of contract presentation is not too problematic in the online software market because most sellers also present the EULA prominently after purchase, at the time of installation of the software. This mode of contract presentation, or "pay now, terms later" contracting, has been held to be valid by most courts. Even though the contract is available after purchase, consumers who aspire to become members of the informed minority would have an incentive to check contract terms before buying because it is less costly to comparison shop this way than to purchase and return software just to see the terms of the license.

text box above the “I agree” button; we removed from our data set companies that use this type of click wrap because we do not have a way to measure whether buyers read the terms. While scrolling through and reading EULA terms would likely increase the total time spent on the corresponding checkout pages, which we can observe, there are several other actions that users typically are required to take on the same pages. As a result, measures based on the total time spent on the checkout page where the terms are presented were too noisy to be useful for this type of company. Finally, we removed from our data set companies that did not make their EULAs available online.

After excluding companies for which we do not have enough data or that are otherwise inappropriate for our tests, we arrived at a final sample of 78 retail and 12 freeware companies. We have no reason to believe that our basic results or conclusions would change significantly were we to increase the number of companies in the sample or the time window during which panelists were followed. In addition, the size of our sample is probably more usefully characterized in terms of the tens of thousands of company visits that we track, described below, because each of these represents an opportunity to access a EULA and is thus the essential unit of observation.

4.2. Company and Product Characteristics

All else being equal, consumers may feel less need to scrutinize the terms in EULAs from companies that are large or old because they assume that such companies are more trustworthy and fair. To test this hypothesis, we obtain information about each company’s annual revenue, year of incorporation, and public or private status. These data were obtained from Yahoo! Finance, Hoover’s,⁹ or direct communication.

Table 1 reports summary statistics for the company characteristics of the two types of companies analyzed. For each company, we note the number of products that it offers (counting each distinctly named product as a separate product), which allows us to calculate the average revenue per product.

We also collect several product characteristics, and we record one flagship product per company. Many small- and medium-size companies market one main product, in which case we select that product as the flagship. For larger companies, we select the product accounting for the

9. Proprietary business information was purchased from Hoover’s, Inc. (<http://www.hoovers.com>).

Table 1. Company and Product Characteristics

	Mean	SD	Min	Median	Max
Company:					
Retail:					
Revenue (\$ millions)	1,560	6,980	.1	5.2	51,100
Average revenue per product (\$ millions)	99.3	406	.004	.99	2,550
Age (years)	15.84	10.10	3	14.5	56
Public company	.27	.45	0	0	1
Freeware:					
Revenue (\$ millions)	1,160	4,010	.1	.1	13,900
Number of products offered	9.25	28.58	1	1	100
Average revenue per product (\$ millions)	12.5	39.8	.1	.1	139
Age (years)	9.08	6.72	3	6.5	27
Public company	.08	.29	0	0	1
Product:					
Retail:					
Consumer product	.68	.47	0	1	1
Number of products offered	14.78	25.02	1	6	150
Price (\$)	407.95	1,042.92	9.97	65.12	5,295
Median price (\$)	364.84	1,032.23	1	49	5,000
Trial, featured product	.83	.38	0	1	1
Trial, most products	.78	.42	0	1	1
Freeware:					
Consumer product	.83	.39	0	1	1

Note. The sample consists of 78 retail companies and 12 freeware companies.

largest fraction of sales or, when this information is not available, the product most prominently featured on the Web site, as these might be the products about which most consumers care.¹⁰ Consumers might be less inclined to read the EULAs of the most popular (or flagship) products, as they are likely to have established stronger reputations. Still, the choice of flagship product should not affect our overall findings, as the readership and visit metrics that we report are for all products, not just flagship products.

It is possible that users are more inclined to become informed about the EULA terms of more costly products, so we record the price of the flagship product as well as the median price of all products available on the Web site for that firm. We record whether the product is a single or multiuse license, because multiseat licenses are likely to have higher prices, and whether the product is offered to developers. We note whether the company offers a trial version of the flagship product, and also of the majority of its products, because that may also affect users' propensity to read terms.¹¹ We also note whether the product is oriented toward business users or the general public. Finally, we classify each product into one of 150 software product categories (for example, antivirus or word processing), on the basis of the characterizations of software at Amazon.

4.3. Contract Characteristics

We want to measure the fraction of shoppers who become informed about EULA terms. We thus collected all the EULA URLs available on a company's Web site. As noted above, many firms sell only one product, and thus they make available online only the EULA that governs the use of that product. Other firms sell many products that are all governed by a single EULA posted on their Web site, and others post different EULAs for different products. Finally, some firms post the EULAs for all their current and past versions of all their products. We found 240 unique URLs corresponding to EULAs for our sample companies.

10. We used a flagship product to collect product-related statistics, as our data set did not allow us to identify the actual product considered by most shoppers, and we were not able to obtain detailed per-product sales data that we could use to weigh the products offered by different sellers.

11. Trial versions are generally offered with limited functionalities over a limited period. Marotta-Wurgler (2007) finds that the majority of trial licenses are noticeably different (for example, the trial license reads "trial license" and is generally shorter than the product license), such that a user would not consider them substitutes.

4.4. Defining Shoppers and Shopping Visits

Among panelists in our data who visit a given company's Web site, we need to define shoppers (namely, visitors with some potential to purchase), since a potentially large fraction of visitors may be browsing without any intent to purchase. We define a user visit as all page views (URL accesses) from a company's Web site during a single user session.

The first definition of user visit identifies shoppers by examining the intensity of a visit to a company Web site. A user with intent to purchase is likely to view several pages on the retail side of the company's Web site. We follow Moe and Fader (2004) and Catledge and Pitkow (1995) and define our broadest definition of a shopping visit as one with at least two page views on a company's Web site. A second, more restrictive definition includes all visits by users who accessed at least five pages on a given company's Web site. Bucklin and Sismeiro (2003) find that this is progressively more likely to exclude casual browsers.

At the other extreme, a visitor who has selected a product and initiated a checkout or payment process has demonstrated intent to purchase. Thus, we use the initiation of the checkout process as the strictest criterion to identify visits with intent to purchase. We identify such events by identifying for the 90 companies in our sample the Web page addresses that would be accessed only during the checkout and payment process and by subsequently recognizing visits that access such pages. While knowing that a user started a checkout or payment process provides no guarantee that the transaction was completed, it indicates a high likelihood that a transaction was at least contemplated. This definition of shopping visit is likely to be overly restrictive, as it excludes visits that do not result in the initiation of a checkout process.¹²

To summarize, the three measures described above establish the shopping intent of a session with increasing strictness. As our definitions of a shopping visit become stricter, we expect that estimates of the informed minority become more conservative, and the actual number is likely to lie somewhere between the three estimates that our methodology provides.

4.5. Defining Shopping Visits: Single Sessions versus Monthly Aggregates

To define a shopping visit, we adopt the two approaches that are standard in the literature using clickstream data. The first approach, used

12. Given the low conversion (of visitors to buyers) rates in e-commerce, such visits likely represent the majority of shopping visits.

by our data provider and the industry in general, defines user sessions as periods of Web browsing activity separated by at least 30 minutes of inactivity. Under this definition, as summarized by Moe and Fader (2004), a user can have multiple visits to a given company in a day, a week, or a month.

The second approach recognizes that a user's shopping activity on a given company's Web site can span several days or even weeks given the low cost of access. Johnson et al. (2004) find that repeated visits to a company's site within a month typically correspond to the same shopping cycle. We thus aggregate visits to a unique company's site in a given month and present these aggregated sessions as an alternative measure of company visits with intent to purchase.

4.6. Demographic and Geographic Data

We use personal information about our panelists to identify characteristics of shoppers and shopping households that are associated with becoming informed about standard terms. Our data set includes the age and sex of the head of the household, household income, household size, and whether there are children present in the household.

In Table 2, we report summary statistics. For the sample of 48,154 visitors who accessed a minimum of two pages on at least one company's Web site in the sample during a single uninterrupted session, the average age is 46.22 years, and the reported age range is 18–99 years. Average income for heads of households is \$60,502 (standard deviation, \$39,704). Income (and perhaps age) is top coded; median income (\$37,500) better describes the sample. About half of the heads of households are male. The average number of household members is 2.78. There are children in 41 percent of these households. Table 2 also shows summary statistics for the sample of visitors who accessed a minimum of five page visits on at least one company's Web site and for unique visitors who selected a product for purchase and began the checkout process.

5. RESULTS

Our analysis here is based on shopping visits to company Web sites in which the user accessed a EULA. We identify these visits by matching the URLs corresponding to all the EULAs we collected to the clickstream of URLs accessed by users during their company visits. We compute descriptive statistics about company visits and EULA accesses under

Table 2. Characteristics of Users Visiting at Least One Sample Company's Web Site for Three Definitions of a Visit

	Mean	SD	Min	Median	Max
User accessed at least two pages (N = 48,154):					
Age (years)	46.22	13.78	18	46	99
Gender (1 = male)	.50	.50	0	0	1
Income (\$)	60,502	39,704	12,500	37,500	150,000+
Household size	2.78	1.27	1	3	5+
Children (1 = yes)	.41	.49	0	0	1
User accessed at least five pages (N = 33,655):					
Age (years)	46.37	13.70	18	46	99
Gender (1 = male)	.50	.50	0	1	1
Income (\$)	60,612	39,782	12,500	37,500	150,000+
Household size	2.79	1.27	1	3	5+
Children (1 = yes)	.41	.49	0	0	1
User initiated checkout (N = 2,831):					
Age (years)	47.39	14.03	18	47	99
Gender (1 = male)	.52	.50	0	1	1
Income (\$)	63,008	41,373	12,500	75,000	150,000+
Household size	2.77	1.23	1	3	5+
Children (1 = yes)	.40	.49	0	0	1

alternative definitions of a visit with intent to purchase. Finally, we present regressions to study the determinants of the (as it turns out, low) probability that a EULA will be accessed.

5.1. Company Visits and End-User License Agreement Accesses

We want to measure the fraction of buyers who seek to become informed about EULA terms in deciding whether to purchase, and as noted we define the sample to include only those company Web sites where EULA access is possible but optional. Table 3 and Table 4 summarize the characteristics of visits to such companies, measured either as uninterrupted sessions (Table 3) or as visits by unique users, aggregating all the monthly sessions by individual users (Table 4). In each case, the data are presented for each definition of a shopping visit to a company's site. We separate visits according to the type of company visited, noting that only retailer visits include secure checkout page views; there is no need for a secure checkout process for a free product. In addition to company visits, the tables show information on page views and visits with EULA access. The number of pages viewed before the first EULA access and the length of time spent viewing EULAs give us some indication of shoppers' level of care or intent in accessing EULA pages. For simplicity, we report the definition of a company visit of intermediate strictness (five page views) for the uninterrupted sessions in Table 3, but the reader can explore alternative definitions in Tables 3 and 4 and see that our results are robust to alternative definitions of shopper and shopping visit.

When a visit is defined as requiring five or more pages accessed at the company visited, there were 72,282 visits during uninterrupted sessions to software retailers and 13,715 to freeware companies. The median number of pages viewed in a given visit to a retailer was 10 pages, and the median visit length was 183 seconds (3.05 minutes). Distributions of page views and visit durations are skewed. End-use license agreements were accessed 57 times among software retailers (.08 percent), and 30 visits were made among freeware companies (.22 percent). The median number of pages seen before accessing a EULA was eight for retailers and four for freeware providers. These numbers are already telling, but another consideration is whether shoppers who access the EULA actually read it. For users in this group, the average length of time spent on the EULA page was 62.7 seconds, and the median time was 32 seconds. (Note that we are defining "access" as a EULA visit of at least 1 second, for the purposes of obtaining a conservatively high number of EULA accesses.) Half of the accesses to EULAs lasted less

Table 3. Company and End-User License Agreement (EULA) Visits: Uninterrupted Sessions

Visit Definition	Company Visits		Page Clicks per Company Visit		Company Visit (Seconds)		EULA Visits		Company Visits (%)		Pages Viewed before EULA Access		EULA Access (Seconds)		EULA Accesses (%)		
	Visits	Mean	Median	Mean	Median	Mean	Median	Visits	Visits (%)	Mean	Median	Mean	Median	Mean	Median	Seconds	Minutes
User accessed at least two pages:																	
Retail	131,729	12.1 (26.7)	5	303.4 (698.4)	101	63	.05	19.1 (62.3)	7	59.4 (91.7)	46	92					
Freeware	28,663	13.4 (36.5)	4	164.3 (616.3)	43	44	.15	6.9 (14.8)	2	99.1 (227.3)	50	86					
User accessed at least five pages:																	
Retail	72,282 (34)	19.8 (34)	10	436.8 (891.6)	183	57	.08	20.9 (65.3)	8	59.6 (96.3)	49	91					
Freeware	13,715	25 (50.3)	12	241 (855.2)	68	30	.22	9.5 (17.4)	4	60.6 (104.5)	57	93					
User accessed at least one secure checkout page:																	
Retail	4,866	13.1 (30.7)	5	568.9 (1,861.8)	207.5	7	.14	15.7 (15.9)	7	166.3 (234.6)	0	71					

Note. Values in parentheses are standard deviations.

Table 4. Company and End-User License Agreement (EULA) Visits: Monthly Aggregates of Uninterrupted Sessions

Visit Definition	Company Visits			Page Clicks per Company Visit			Company Visit (Seconds)			EULA Visits			Company Visits (%)			Pages Viewed before EULA Access			EULA Access (Seconds)			EULA Accesses (%)				
	Company Visits	Mean		Median	Mean		Median	Mean		Median	Mean		Median	Mean		Median	Mean		Median	Mean		Median	Mean		Median	
		Visits	Mean		Median	Mean		Median	Mean		Median	Mean		Median	Mean		Median	Mean		Median	Mean		Median	Mean		Median
User accessed at least two pages:																										
Retail	69,372	2.3	7	576.1	152	61	.09	30.1	10	63.4	42	44	90													
		(77.6)		(2,278)				(73.8)		(93.2)																
Freeware	11,323	35.1	4	416	76	46	.41	10.2	3	101.7	33.5	49	85													
		(288.8)		(2,781.7)				(21.2)		(22.5)																
User accessed at least five pages:																										
Retail	43,708	34.9	14	829.2	286	56	.13	32.7	11	62.7	32	46	91													
		(95.8)		(3,470.8)				(76.6)		(96.8)																
Freeware	5,509	69.4	11	741.3	150	36	.65	12.6	4	107.8	33.5	49	84													
		(411.4)		(3,956.7)				(23.5)		(244.2)																
User accessed at least one secure checkout page:																										
Retail	2,991	37.1	11	1,456.8	457	9	.30	20.7	12	160.4	106	0	67													
		(88.6)		(4,657.5)				(20.9)		(203.2)																

Note. Values in parentheses are standard deviations.

than 30 seconds, and 90 percent spent less than 2 minutes on the contract.

To give these numbers some context, the average number of words in EULAs for retail products in the sample (unreported) is 2,277, with a median of 2,187 words and a standard deviation of 1,148. The time spent on the EULAs relative to their length indicates that readers rarely read terms in their entirety, especially as they are generally written in complex legalese. Since consumers are unlikely to be aware of the default rules, even if EULAs do spell out some terms in clear language, they may still be misunderstood. Bailey and Bailey (1999) find that the average (nonlegalese) reading rate of American adults is 250–300 words per minute, so a complete read of the typical EULA would require 8–10 minutes, not 1 minute. In other words, even the small number of EULAs accessed in our sample is still likely to be an overestimation—probably a substantial one—of the number of effectively informed readers. On the other hand, the small number of people who read EULAs may not be representative of the average reader and may have developed the ability to quickly skim the essential information.

Since our results could be biased if companies with relatively few visits in our sample are systematically different in terms of the probability of having visitors access their EULAs (for example, because visitors are less likely to be *ex ante* familiar with the terms offered by such companies), we recalculated the frequency of EULA accesses using frequency weights to adjust our data by the inverse of the total number of visits at each seller. This resulted in lower rates of EULA access across all definitions and thus addressed concerns that the lower frequency of visits to certain types of firms in our sample could be biasing our observed access rates downward.

Aggregating all monthly sessions of an individual user into a monthly visit (shown in Table 4) leads to similar results. The overall results, however, indicate that the impressions from Table 3 are robust to the precise definition of company visits. Ultimately, the highest fraction of readers among retail shoppers, across all shopper and session definitions, is .65 percent, or about six readers per every 1,000 shoppers.

5.2. Interpreting the Results: Can This Be an Informed-Minority Equilibrium?

Coming back to the empirical framework of Figure 1, we see that visitors to the Web sites of the companies in our sample can be classified as potential buyers or users visiting for other reasons. We measure the total

number of page views during each visit, whether a EULA was accessed, and whether a secure checkout session was initiated. These data, reported for individual sessions in Table 3 and for monthly visitors in Table 4, allow us to estimate the number of readers, buyers, and shoppers by using access to a EULA page as a proxy for reading, initiation of the checkout process as a proxy for buying, visits with five or more page views as a proxy for identifying shoppers, and visits with between two and five page views as a proxy for identifying nonshoppers. On the basis of the data in Table 4, we estimate the number of monthly visitors in our sample for each of the six categories shown in Figure 1.

We find that se_1b_1 , or nine, readers who buy and $se_1(1 - b_1)$, or 47, readers who do not buy. There are $s(1 - e_1)b_2$, or 2,982, buyers who are not readers and $s(1 - e_1)(1 - b_2)$, or 40,670, shoppers who neither read nor buy. Few nonshoppers would be expected to read EULAs, so it is not surprising that the value of $(1 - s)e_2$ is small; in our sample, it equals five (of 25,664 visits). Finally, the large majority of nonshoppers do not read EULAs: $(1 - s)(1 - e_2)$, or 25,661, on the basis of the above proxies. We thus arrive at an estimate for e_1 , the fraction of shoppers who constitute the informed minority of $[se_1b_1 + se_1(1 - b_1)]/[se_1b_1 + se_1(1 - b_1) + s(1 - e_1)b_2 + s(1 - e_1)(1 - b_2)] = 56/43,708 = .13$ percent.

It is possible that considering all visitors with five or more page views as shoppers overestimates the number of shoppers. An alternative estimate could be obtained by assuming that, among actual shoppers, the conversion ratio to initiate a checkout session among nonreaders is the same as that for readers, $9/56 = 16.1$ percent (which is higher than the purchase conversion ratios of 2–5 percent cited in the marketing literature but reasonable if not all checkout sessions that we capture result in actual purchases). In that case, the informed-minority fraction of all shoppers would be the same as the fraction of buyers, namely, $9/2,991 = .30$ percent.^{13,14}

13. Most models of the informed minority predict that the conversion ratio for nonreaders would be the same as or higher than the conversion ratio for readers, as the latter is less likely to purchase the product if they are not satisfied with the terms of the EULA. An upper bound on the size of the informed minority can be obtained if we assume that $b_2 = 100$ percent, that is, that 100 percent of nonreaders proceed to purchase the product. In that case, the informed minority would be $56/(2,991 + 47) = 1.84$ percent of the total number of shoppers.

14. If we assume that real shoppers will purchase from some merchant (while they may visit many) and that among these shoppers the ones who constitute the informed minority are equally likely to access a EULA at the sites of any of the merchants they visit, then

The bottom line is that the fraction of visitors who access EULAs is very small, on the order of .1 percent. While a number of alternative estimates can be calculated, these estimates point to that fraction being well under 1 percent. Assuming that no other disciplining mechanisms are at play, is it conceivable that such a small informed minority could protect all buyers and discipline sellers into providing efficient contract terms, thus preventing a market failure? The literature offers few meaningful suggestions as to how large the informed minority needs to be, and these are typically provided in the context of illustrative examples. Schwartz and Wilde (1979) offer an example in which the informed minority needs to be 20–30 percent to be effective. Our estimates here are imperfect, but they are two orders of magnitude smaller.¹⁵

Theoretically, the size of the informed minority required to induce sellers to provide good terms depends on the trade-off between the gross profit from selling to informed buyers (determined from the marginal cost of the product) and the cost of providing better contract terms. Consider a seller who may offer standard contract terms that are more or less favorable to the buyers, which we will call good and bad terms, respectively. The fraction r of buyers who become informed about the terms reflects the cost of finding and reading the standard-form contract and the expected benefit from doing so and is determined by the characteristics of the setting (for example, buyer search strategies as in Schwartz and Wilde [1979]). In our sample, this corresponds to the fraction e_1 of shoppers who are in the informed minority. Buyers value the rights and restrictions incorporated in the standard-form contract (for example, warranty terms, the ability to transfer the product, and so on), and thus good terms are valued more than bad terms. But good terms are naturally more expensive for the seller to provide than bad

the behavior of visitors in our sample who initiate a checkout session is representative of shoppers as a whole, and their likelihood of accessing EULAs (30 percent) provides an estimate of the size of the informed minority among these most determined shoppers.

15. The estimates presented above are based on monthly visits as reported in Table 4. They are conservative in the sense that using visits defined as individual sessions would result in lower estimates for the size of the small minority. Using session data from Table 3 would result in seven readers who buy, 50 readers who do not buy, 4,859 buyers who are not readers, 67,366 shoppers who neither read nor buy, and 59,447 nonshoppers who include only six readers. The fraction e_1 of shoppers in the informed minority would be $57/72,282 = .079$ percent. The fraction of readers who initiate checkout sessions would be $7/57 = 12.3$ percent, and assuming the same conversion ratio for nonreaders would give $7/4,866 = .14$ percent as the informed minority. A conversion ratio of 100 percent for nonreaders would give an upper bound for the informed minority of $57/(4,866 + 50) = 1.16$ percent.

terms, which results in corresponding product costs of c_g and c_b , with $c_g > c_b \geq 0$. Amending our earlier notation, we see that informed buyers purchase with probability b_1 if the terms are good and b_3 if the terms are bad ($b_1 > b_3$), and uninformed buyers still purchase with probability b_2 . The exact values of b_1 , b_2 , and b_3 are determined by the characteristics of the setting, but it is natural to consider $b_1 > b_2 > b_3$. The seller offers good terms if the expected payoff from doing so is higher than under bad terms:

$$[rb_1 + (1-r)b_2](p - c_g) \geq [rb_3 + (1-r)b_2](p - c_b).$$

Equivalently, the fraction of readers required to induce offering good terms¹⁶ is

$$r \geq (c_g - c_b) \left/ \left[\left(1 - \frac{b_1}{b_2}\right)(c_g - c_b) + \frac{b_1 - b_3}{b_2}(p - c_b) \right] \right.$$

This fraction becomes smaller as the incremental cost of providing good terms decreases and as the probability that shoppers who become informed will drop out if they see bad terms increases.

Given certain values for these unknown parameters, any fraction of informed shoppers could support an informed-minority equilibrium. However, the market for software maintenance and support (M&S) can be used to derive very rough estimates of the likely range of one of these parameters, the marginal cost of good terms, and to put our observed fraction of readers into perspective. Maintenance and support is a key term in software EULAs,¹⁷ and thus the cost of supplying M&S should be an order-of-magnitude approximation of the cost of offering good EULA terms.

To estimate the cost of M&S terms, we obtained product price and annual M&S price for 520 software products from the 42 software companies in the sample of Marotta-Wurgler (2007) that provided M&S separately on a periodic basis (that is, did not charge per incident). On average, M&S is priced at 26 percent of the product price (exclusive of the M&S). The median is 20 percent, and the standard deviation is 22 percent. Since there was high intercompany correlation, we focused on

16. An outcome in which the seller offers bad terms is inefficient if, assuming buyer valuations V_g for good terms and V_b for bad terms, $V_g - V_b > c_g - c_b$, as it corresponds to an inefficient provision of terms because the buyers value good terms above the seller's cost of providing them.

17. Marotta-Wurgler (2007) identifies and measures 23 important and common terms that allocate rights and risks between buyers and sellers of software, and maintenance and support (M&S) is one of these terms.

company means. The distribution for the 40 companies remaining after dropping two obvious outliers has a mean of .29, a median of .24, and a standard deviation of .16.

Thus, a year of M&S for software is on average priced at 25–30 percent of the product price.¹⁸ Since M&S costs are primarily variable (labor) costs, if the market for M&S was perfectly competitive, this would provide some indication of the marginal cost of M&S and thus a floor on the marginal cost of pro-consumer EULA terms. There are several reasons why 25–30 percent of the product price may be too high an estimate: (1) consumers may be more likely to purchase M&S from the seller of the software, and thus software companies may price as a two-part tariff, with a lower price for the up-front purchase (the software product) and a higher price for the subsequent purchase (M&S), (2) consumers who purchase M&S are likely to have higher M&S costs due to adverse selection and/or moral hazard, and (3) software companies may have substantial market power in providing M&S because of barriers to entry for competitors that are not as familiar with their product or consumers' propensity to purchase M&S from the seller of the original software. All of these factors would result in an M&S-to-product price ratio that is higher than the cost of providing M&S. On the other hand, M&S is only one of 23 key EULA terms, which include several other types of warranties and permissions to copy or distribute the software that can impose opportunity costs. Furthermore, M&S pricing is similar in enterprise software markets, where significant competition exists from third-party M&S providers and purchase of M&S contracts is almost universal.

On balance, it is reasonable to assume that the cost of this level of M&S is around 20 percent of the product price p , or $.2p$. Dividing the numerator and denominator of the fraction of informed buyers necessary to induce the seller to offer good terms by p , we get

$$r \geq \left(\frac{c_g - c_b}{p} \right) \left/ \left[\left(1 - \frac{b_1}{b_2} \right) \frac{c_g - c_b}{p} + \frac{b_1 - b_3}{b_2} \left(1 - \frac{c_b}{p} \right) \right] \right.$$

If $(b_1 - b_3)/b_2 \leq 1$ —which would be the case if readers purchase with at least the same probability as nonreaders when they discover good terms (bad terms reduce or eliminate this probability)— $b_1 \geq b_2$ and thus $1 - b_1/b_2 \leq 0$, and $c_b \geq 0$ and thus $1 - c_b/p \leq 1$, we get $r \geq (c_g - c_b)/$

18. One year was the most common duration—as well as the median duration—of free M&S for the companies that provided such a period of free M&S.

p , or $r \geq .2$. In other words, if the cost of providing good terms is $.2p$ and the three reasonable assumptions in the previous sentence hold, as is the case in our data, then one would require $r \geq .2$ to support an informed-minority equilibrium. This is 200 times larger than the value of $r \approx .001$ (or .1 percent) that we observe in the data. Alternatively, our data suggest that, for the informed buyers to induce the seller to offer good terms, their incremental cost would have to be almost negligible at less than .1 percent of the selling price.¹⁹ In either case, our data are unlikely to be consistent with an informed-minority equilibrium.

A similar and perhaps simpler approach to whether we might be observing an informed-minority equilibrium is to look at the seller calculus for visitors who initiate a checkout session. In an informed-minority equilibrium, sellers would be offering good terms, and according to Table 4, EULAs are accessed in six of 3,534 visits with checkout sessions. Since initiating a checkout session is a requirement to complete a purchase, if sellers were to offer bad terms, they might lose up to 100 percent of these readers. Thus, if sellers are trading off the net revenue from the sales to the six readers against the cost of providing good terms to the 3,528 nonreaders, as would be the case if we were observing an informed-minority equilibrium, sellers would keep offering good terms if the cost of doing so was less than .17 percent of the selling price.

This argument relies on fewer assumptions than that developed above, and it once again leads to the same conclusion, namely, that our data seem inconsistent with an informed-minority equilibrium. Hence, if the informed minority were the only disciplining mechanism, the natural implication would be that sellers are offering the lowest quality M&S terms. As they do not appear to take such advantage, it must be that other mechanisms are at play and that (perhaps) in the absence of such mechanisms, more buyers would read.

5.3. Robustness Checks: Becoming Informed without Reading?

Consumers can become informed in a number of ways. The Internet contains several consumer product review sites, blog posts with comments about product quality, and specialized news outlets that might

19. Of course, one could argue that offering a pro-buyer dispute resolution clause might cost the seller .1 percent of the price. Although it is theoretically possible, we find it unlikely that sellers will change this clause in response to the threat of losing one in 1,000 buyers. More important, the terms that matter the most to consumers (such as M&S and warranties) are among the costliest ones.

convey the content of standard-form contract terms to a few more shoppers.

From the Alexa Web site,²⁰ we obtained a list of 25 of the most trafficked sites likely to have information about EULA terms, product quality information, and sellers' practices. We then measured the rate at which shoppers in our sample accessed these sites. Very few sites focus exclusively on software and EULA terms. Others that occasionally discuss EULA terms are technology-related news sites, such as *Wired* and *Ars Technica*; sites that offer general consumer protection news and rants about abusive practices by sellers, such as *Consumerist*; and sites with general technology news, such as *PC Magazine*. Finally, there are general consumer information sites that do not focus on software but contain software product reviews, such as *Consumer Reports*.

We reviewed the pages accessed by shoppers visiting each URL associated with these 25 sites to make sure that the pages accessed contain information about EULAs. Of the 131,729 sessions with at least two pages accessed, only three shoppers accessed pages with EULA information in consumer review sites.²¹ At the monthly level of aggregation, 11,657 (16.8 percent) visits accessed at least one of the 25 consumer sites, but none of that activity was related to EULAs. Of this group, only 69 shoppers accessed pages with particular software product reviews or pages containing information such as reviews of tax software in that month. A total of 84 shoppers accessed news or general information pages about software, such as how to obtain certain free plugins. The remaining visits were to pages unrelated to software or EULA terms, so it does not appear that consumers are becoming informed by these alternative means.

It is also possible that the quality of terms is reflected in the seller's price, and thus shoppers do not need to become informed about these terms. As is the tenet of the informed-minority hypothesis, however, for terms to be reflected in prices, a sufficient number of consumers need to be informed about terms when they comparison shop (unless all sellers offer the worst enforceable terms, and consumers know this and therefore have no incentive to become informed about terms). Marotta-Wurgler (2007) finds that most sellers offer terms worse than those provided by default rules but not so bad that no information can be

20. The top Web sites were obtained from Alexa, Top Sites (<http://www.alexa.com/topsites>).

21. Two shoppers downloaded the EULAlyzer software from Javacool Software to obtain a review of a particular EULA. The third accessed a reference to a mock EULA.

gained by becoming informed about them. Our results are consistent with this, although we are not able to draw conclusions about the economic efficiency of this outcome.

Marotta-Wurgler (2007) is particularly relevant to this paper, as it looks specifically at the relationship between EULA term bias and price and finds almost no detectable relationship between them. It is possible that this is because terms for prepackaged software products are a relatively small component of price, and it is hard to measure the term-price relationship without controlling for the many other product attributes that affect price. However, this finding is also consistent with our results, as sellers would have little incentive to adjust their prices to reflect the quality of EULAs if consumers fail to become informed and thus compare terms. In such a situation, we would indeed expect that consumers can infer very little about EULA terms just by looking at price.

In addition, although consumers might be expected to have stronger incentives to become informed for higher priced products, the effect of price on the propensity to read terms is not statistically significant. However, we refrain from interpreting this evidence too strongly, because our investigation of why consumers do or do not read is limited compared with what we can explore directly, namely, the prediction that they read at all.

Another possibility is that the degree of disclosure of the EULA terms (for example, the prominence with which they are displayed) signals their quality. For instance, an equilibrium may arise in which good terms are prominently displayed while poor terms are made harder to find or inaccessible. Our results show that such an equilibrium, if it exists in our setting, is not maintained based on an informed minority. Furthermore, Marotta-Wurgler (2009) finds that prominently disclosed click-wrap contracts were roughly as one-sided as non-click-wrap contracts that required more effort to discover. This suggests that firms are not using the form of disclosure to signal the quality of terms. They do not seem to use click wraps to increase awareness of good terms, and they do not seem to use browse wraps to hide bad ones.

5.4. Determinants of End-User License Agreement Visits

Here we briefly examine those characteristics of the company, product, user, and Web site that distinguish the readers (or, more precisely, the clickers) from the nonreaders. Table 5 reports logit regressions in which

Table 5. Logit Regressions of Determinants of Online Visits to End-User License Agreements (EULAs)

	Uninterrupted Sessions			Monthly Aggregates of Uninterrupted Sessions		
	At Least Two Pages	At Least Five Pages	At Least One Secure Checkout Page	At Least Two Pages	At Least Five Pages	At Least One Secure Checkout Page
Freeware	1.06 (.75)	.71 (.81)		2.05** (.75)	1.95* (.79)	
In Median price	-.004 (.13)	-.02 (.14)	.38 (.39)	.07 (.14)	.06 (.14)	.07 (.41)
In Revenue per product	-.52** (.05)	-.55** (.06)	-.32 (.21)	-.52** (.05)	-.54** (.06)	-.36* (.14)
Public company	2.28** (.35)	2.57** (.43)	.29 (1.16)	1.85** (.35)	2.13** (.39)	1.08 (.89)
Pages viewed	.06** (.01)	.03* (.01)	.13** (.04)	.07** (.01)	.04** (.01)	.12** (.03)
Gender	-.39* (.22)	-.30 (.24)	-1.23 (.94)	-.35* (.20)	-.36* (.22)	-.48 (.71)
In Income	.11 (.15)	.21 (.17)	-.23 (.43)	.13 (.14)	.21 (.15)	-.21 (.42)
In Age	.40 (.35)	.14 (.39)	1.45 (1.31)	.30 (.33)	.19 (.36)	-.49 (1.38)
N	160,392	85,997	4,866	80,695	49,217	2,991
Pseudo-R ²	.11	.11	.20	.13	.13	.15

Note. The dependent variable is EULA access. Standard errors, clustered by visitor, are in parentheses.

*Significant at the 10 percent level.

**Significant at the 5 percent level.

***Significant at the 1 percent level.

the dependent variable is a dummy for whether a EULA was accessed during a particular company visit.

Factors that have a positive, albeit very small, effect on propensity to read are whether the product offered is freeware (since consumers might think there is a catch) and the number of pages visited in a session (longer visits might indicate a more serious intent to shop). A factor that has a negative effect on readership is the natural log of a company's revenues (as a proxy for size) divided by the number of products. A reason behind this is that consumers may be less likely to access EULAs for products they know about and thus may trust, relying instead on product familiarity. We use average product revenues as a proxy of consumer trust.²² Still, the main result here is that the most important term in the regression is the constant term: EULAs are rarely read by anyone.

5.5. Why Do So Few Consumers Read?

The small fraction of consumers accessing EULAs suggests a high cost of finding the EULA and reading its terms. If the primary cost lies in locating the contract, then mandating disclosure should increase the fraction of informed consumers. However, Marotta-Wurgler (2012) analyzes this same data set and finds that increased contract disclosure is not associated with increased readership. This suggests that the primary cost facing consumers is in reading and comprehending contract terms; it is possible that consumers do not access these terms even if they can do so with only the click of the mouse, as they expect reading EULA terms to be prohibitively costly. Measures that reduce the cost of comprehending the contract terms are likely to be more successful in increasing the fraction of informed consumers. Thus, a regulatory approach focusing on shortening and simplifying online contracts, standardizing their terms, and providing a standardized summary is more likely to increase readership than an approach focusing solely on disclosure. Regulations that mandate the disclosure of basic credit terms in a standardized manner and large fonts, such as the Schumer box in the United States and the

22. In unreported regressions, we examined whether shoppers are less likely to read the EULAs of products that are more likely to involve repeat purchases (such as upgrades) because they may be familiar with the terms from previous use. Other products, such as test preparation software, are less likely to be purchased repeatedly. The relationship between a dummy indicating whether a product is likely to be purchased repeatedly and the users' propensity to access EULAs is generally positive and, under certain definitions of shoppers, is statistically significant.

summary box in the United Kingdom, can reduce the cost of reading and comprehending contract terms. Simple and plain language requirements can be seen in the same light.

6. DISCUSSION AND IMPLICATIONS

Consumer access to the terms of standard-form contracts has been at the center of a legal and policy debate, and a major question has been whether disclosure of terms in standard-form contracts that govern consumer transactions should be regulated. A related debate has focused on the enforceability of terms and possible need to regulate disclosure for software in general and software purchased online in particular. A central issue in these debates is the validity of the informed-minority hypothesis: the view that comparison shoppers for standard terms help sustain efficient terms in equilibrium. In this paper, we investigate the extent to which consumers actually access the terms of certain standard-form online contracts. Our clickstream data allow us to measure the informed minority with reasonable precision for the first time.

We find that very few consumers choose to become informed about standard-form online contracts. In particular, we estimate that the fraction of retail software shoppers who access EULAs is between .05 percent and .22 percent, and most of the few shoppers who do access EULAs do not spend enough time doing so to have digested more than a fraction of their content. We also document that shoppers rarely access substitute sources of information, such as sites containing consumer product reviews or relevant news, to learn about EULA terms. Even under generous assumptions, it is difficult to envision the probability that EULAs are read (and understood) growing even to 1 percent. Our estimates of the size of the informed minority in this market are one or two orders of magnitude smaller than examples offered in the literature for the size required to sustain an informed-minority equilibrium, and this is further confirmed by simple theoretical calculations.

It is possible that buyers in the market for online software believe that other factors will discipline sellers in terms of the EULA terms they offer and thus rationally decide not to become informed and establish an informed minority in this market. Our data do not speak to whether it is rational or irrational to read or whether or not terms are efficient. Still, the market that we study offers a very favorable setting to look for an informed minority of buyers because of the low costs of accessing

contracts and shopping between firms and the presence of new and unknown firms that have yet to establish reputations.

While our results apply directly only to one context, the fact that online comparison shopping is so cheap and easy raises questions about whether informed-minority mechanisms could be consequential in other contexts. Furthermore, if that is the case, an approach similar to our own should result in readership levels that are substantially higher than what we observed. Assessing the presence of other factors that discipline sellers in the market for online software as well as whether readership levels are adequate to support the informed-minority mechanism in other markets are promising directions for further research.

The low readership of contract terms, even for those EULAs for which the terms are prominently accessible and consumers are required to acknowledge reading and agreeing to the terms before purchasing a product, suggests that it is the cost of reading and assessing these terms, rather than the cost of finding them, that discourages consumers. Hence, regulation that aspires to promote the emergence of an informed fraction of consumers solely through additional disclosure may be too optimistic. If the goal is achievable, it will require making contract terms easier to read, understand, and compare.

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Will Increased Disclosure Help? Evaluating the Recommendations of the ALI's “Principles of the Law of Software Contracts”

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The aim of the American Law Institute's new Principles of the Law of Software Contracts is to improve online contracting practices. Instead of regulating terms directly to reduce the possibility of unfair or biased terms, the Principles emphasize increased contract disclosure to encourage readership and comparison shopping. In this Article, I test whether increasing disclosure in the proposed manner is likely to increase readership in the setting of end user license agreements (EULAs) of software sold online. I follow the clickstreams of 47,399 households to 81 Internet software retailers and find that EULAs are approximately 0.36 percent more likely to be viewed when they are presented as clickwraps that explicitly require assent, as suggested by the Principles, than when they are presented as browserwraps. The results indicate that mandating disclosure will not by itself change readership or contracting practices to a meaningful degree. I briefly review other approaches to reform that may be more effective but come with their own limitations.

Perhaps the most serious problem that deters reading in the software retail context, singled out by many commentators and highlighted in litigation, is the manner of presenting terms.¹

INTRODUCTION

The end user license agreements (EULAs) that attach to most software products are controversial contracts. On the one hand, EULAs allow software publishers to allocate rights and obligations associated with their products and educate consumers about intellectual property rights.² But others are concerned that transferors' widespread use of shrinkwraps, licenses that can be seen only after a user purchases the product, or browserwraps, licenses presented via hyperlinks at the

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¹ ALI, *Principles of the Law: Software Contracts* 113 (2010) (“ALI Principles”).

² See Robert W. Gomulkiewicz and Mary L. Williamson, *A Brief Defense of Mass Market Software License Agreements*, 22 Rutgers Computer & Tech L J 335, 341–61 (1996); Robert W. Gomulkiewicz, *Getting Serious about User-Friendly Mass Market Licensing for Software*, 12 Geo Mason L Rev 687, 694–95 (2004).

bottom of transferors' web sites, may not effectively put transferees on notice of the terms.³ This lack of consumer awareness, some fear, allows sellers to offer unfair terms that contractually extend intellectual protections beyond those afforded by federal intellectual property laws, for example, and that limit liability for product failure.⁴

Not surprisingly, given these disparate viewpoints, there is currently no clear set of rules to govern software licenses. This uncertainty is costly to both sellers and buyers. Addressing conflicting court decisions and harmonizing the law of software contracts has proved no easy task, however. Previous efforts such as Article 2B of the Uniform Commercial Code (UCC) failed to obtain the approval of the American Law Institute (ALI), and the Uniform Communications Information Transactions Act (UCITA) was adopted only in Maryland and Virginia.⁵ These efforts were strongly opposed by many academics and consumer advocates due to a belief that the draft rules did not sufficiently protect consumers.

The ALI has recently proposed a new approach in its Principles of the Law of Software Contracts.⁶ Unlike its predecessors, the drafters of the Principles start from an explicit assumption that current market forces alone are too weak to ensure that sellers offer terms they consider fair to buyers. At least anecdotally, this assumption seems reasonable in the mass-market retail context. When too few buyers are sensitive to standard terms (that is, they fail to read them, understand them, or care about them), there is no "informed minority" of comparison shoppers that will induce sellers to internalize buyers' preferences.⁷ To the extent that sellers are not otherwise constrained by reputation or effective regulation, offering unfavorable terms may be profit maximizing.

³ See, for example, Richard H. Stern, *Shrink-Wrap Licenses of Mass Marketed Software: Enforceable Contracts or Whistling in the Dark?*, 11 Rutgers Computer & Tech L J 51, 55–56 (1985) (describing the idea of finding consent based on opening a package, as is done with shrinkwrap licenses, as "unsettling" though likely the result of business realities); Batya Goodman, Note, *Honey, I Shrink-Wrapped the Consumer: The Shrink-Wrap Agreement as an Adhesion Contract*, 21 Cardozo L Rev 319, 356–57 (1999) (arguing that shrinkwrap licenses should be treated as adhesion contracts partially because many customers are unaware of the terms at the time of purchase).

⁴ See, for example, J. Thomas Warlick IV, *A Wolf in Sheep's Clothing? Information Licensing and De Facto Copyright Legislation in UCC 2B*, 45 J Copyright Socy USA 158, 163–67 (1997).

⁵ See Michael Seringhaus, *E-book Transactions: Amazon "Kindles" the Copy Ownership Debate*, 12 Yale J L & Tech 147, 164–65 (2009).

⁶ See generally *ALI Principles* (cited in note 1). For a more extensive discussion and defense of the ALI's disclosure-focused approach in *Software Contracts*, see generally Robert A. Hillman and Maureen O'Rourke, *Defending Disclosure in Software Licensing*, 78 U Chi L Rev 95 (2011).

⁷ See Alan Schwartz and Louis L. Wilde, *Intervening in Markets on the Basis of Imperfect Information: A Legal and Economic Analysis*, 127 U Pa L Rev 630, 649–51 (1979).

The Principles' drafters emphasize the regulation of disclosure rather than the regulation of terms.⁸ They anticipate that disclosure will promote the emergence of an informed minority,⁹ and it avoids the intrusive and controversial nature of direct regulation of terms. In particular, § 2.02, a provision providing safeguards for mass retail transactions, includes a set of best practices for disclosure that ensures enforcement of a seller's terms. To create a presumption of enforceability, one provision asks that software vendors, both online and brick-and-mortar, post their license agreements in a "reasonably accessible" manner on the corporate website, regardless of whether they sell software through that website.¹⁰ The Principles ask that terms be conspicuously available via hyperlink before purchase "so that a transferee cannot help but become aware of the terms."¹¹ Finally, sellers who sell their software via their corporate websites are asked to use clickwraps, which require buyers to click on "I agree" next to a scroll box with the text of the license.¹² If effective, this approach to correcting market failure would seem superior to direct regulation.

If contract readership remains relatively unaffected by increased disclosure, however, promoting increased disclosure would be ineffective and could even introduce new costs and inefficiencies. Courts might be led to believe mistakenly that terms are the product of well-working market mechanisms and be more lenient in policing abusive terms.¹³ Alternatively, disclosure in the form of clickwraps might be costly to sellers if the additional steps in the checkout process cause some shoppers to lose patience.¹⁴ Finally, these recommendations could generate costly changes to current software seller disclosure practices, because most contracts currently offered are either "pay

⁸ The Principles also include some mandatory terms, such as a nondisclaimable implied warranty of no known material hidden defects. See *ALI Principles* § 3.05(b) at 193 (cited in note 1). See also Hillman and O'Rourke, 78 U Chi L Rev at 95–96 (cited in note 6).

⁹ See *ALI Principles* § 2.02, comment c at 126–30 (cited in note 1). See also Hillman and O'Rourke, 78 U Chi L Rev at 100 (cited in note 6).

¹⁰ *ALI Principles* § 2.02(c)(1) at 126–28 (cited in note 1).

¹¹ *ALI Principles* § 2.02, comment c at 128 (cited in note 1).

¹² *ALI Principles* § 2.02, comment c at 129 (cited in note 1) (discussing the need for an action of acceptance, such as clicking an icon, to make an online transaction enforceable).

¹³ See Robert A. Hillman, *Online Boilerplate: Would Mandatory Website Disclosure of E-standard Terms Backfire?*, 104 Mich L Rev 837, 853–55 (2006); Omri Ben-Shahar, *The Myth of the "Opportunity to Read" in Contract Law*, 5 Eur Rev Cont L 1, 13–21 (2009); Omri Ben-Shahar and Carl E. Schneider, *The Failure of Mandated Disclosure* *57–62 (University of Chicago John M. Olin Law and Economics Working Paper No 516, Mar 2010), online at <http://ssrn.com/abstract=1567284> (visited Oct 20, 2010).

¹⁴ See Ronald J. Mann and Travis Siebeneicher, *Just One Click: The Reality of Internet Retail Contracting*, 108 Colum L Rev 984, 998–1001 (2008).

now, terms later” contracts (PNTLs) or browsewraps that users must explore the website to find.¹⁵

In this Article, I test the central presumption of the ALI’s approach, namely that increased EULA disclosure will indeed lead to increased readership. The current analysis, which concentrates on the method of disclosure encouraged by the Principles, is drawn from a more general study of the effectiveness of alternative disclosure techniques.¹⁶ I used clickstream data to track the visits of 47,399 households to the websites of eighty-one software retailers over a period of one month. For each household in the panel, I tracked the exact sequence of page visits (URLs) to each software website, such as visits to product pages, checkout pages, and pages that correspond to EULAs. I also noted the time spent on each URL. For each software retailer in the sample, I recorded whether the EULA was presented as a clickwrap (“I agree”) or a browsewrap.

The main finding is that an increase in contract accessibility does not result in an economically significant increase in readership. Mandating assent by *requiring* consumers to agree to terms by clicking on an “I agree” box next to the terms increases contract readership by at best on the order of 1 percent. Averaging across six different estimates of shoppers’ readership rates, I estimate that clickwraps are read only 0.36 percent more often than browsewraps, and the overall average rate of readership of EULAs is on the order of 0.1 percent to 1 percent. This low average rate of readership is conservative in that I assume that all shoppers who access a EULA page for at least one second can be said to have read it, despite the fact that the average EULA is 2,300 words long and written in complex language.¹⁷

An increase in the shopper readership rate of 0.36 percent, from a base rate of 1 percent or less, will not create an informed minority of comparison shoppers. The clearest policy implication is that increased disclosure is no panacea. Disclosure is but a necessary condition for readership. It appears that the cost of *accessing* the contract is not the issue; rather it is the expected benefit from *reading* it.

¹⁵ Florencia Marotta-Wurgler, *Are “Pay Now, Terms Later” Contracts Worse for Buyers? Evidence from Software License Agreements*, 38 J Legal Stud 309, 321–23 & table 1 (2009) (finding that in a sample of 515 EULAs, 52.2 percent were PNTLs).

¹⁶ See generally Florencia Marotta-Wurgler, *Does Disclosure Matter?* (NYU Center for Law, Economics and Organization Working Paper No 10-54, Nov 2010), online at <http://ssrn.com/abstract=1713860> (visited Dec 21, 2010).

¹⁷ See Yannis Bakos, Florencia Marotta-Wurgler, and David R. Trossen, *Does Anyone Read the Fine Print? Testing a Law and Economics Approach to Standard Form Contracts* *26 (NYU Center for Law, Economics and Organization Working Paper No 09-40, Oct 2009), online at <http://ssrn.com/abstract=1443256> (visited Oct 22, 2010) (finding the average word count of 240 EULAs to be 2,277 words with a standard deviation of 1,148 words).

Policymakers need to focus much more on changing consumers' expectations about the net benefits of becoming informed. Shoppers who know that the EULA exists but choose not to read it might do so because they expect that contracts are too long and hard to understand, too unlikely to become relevant in their use of the product, or in any case address issues that are less important than product characteristics such as price and function. Options available to policymakers thus include reducing contract length, simplifying and standardizing language, and developing ratings that would convey the essence of terms with minimal effort.¹⁸ These changes might induce consumers to become informed and comparison shop for products with more favorable terms. Direct regulation also remains an option of last resort, but one that needs to remain on the table despite the Principles' drafters' understandable apprehension. Realistically, even a suite of well-designed changes to disclosure and presentation methods may be insufficient to raise readership by the one to two orders of magnitude needed to reach a rate that could plausibly support an informed minority equilibrium.

Furthermore, recent research suggests that the drafters' implicit fear that firms that use PNTLs or shrinkwraps will take advantage of delayed disclosure by offering particularly one-sided terms is misguided. A study of the terms offered by 515 software retailers who sell their software online found that PNTL contracts were in no regard more one-sided than those of sellers that disclosed their contracts prior to purchase as browserwraps *or* clickwraps.¹⁹ If there is fear that sellers are using poor disclosure to sneak in unusually unfavorable terms, it is a fear that is currently not justified. Still, for the aforementioned reasons, the effect of disclosure on EULA readership is an important general question that needs to be addressed.

Part I of this Article provides an overview of the perceived problems with EULAs and the Principles' approach to alleviating them. Part II describes the methodology. Part III describes the main results. Part IV discusses implications.

I. DISCLOSURE AS THE PRINCIPLES' MAIN APPROACH TO PREVENTING MARKET FAILURE

The law governing software transactions is in disarray. During the past two decades, courts have struggled with the contract and intellectual property law issues presented by this new technology. In the absence of clear rules on the subject, courts have disagreed on a variety of

¹⁸ For a detailed discussion of the policy implications of these findings, see Part IV.

¹⁹ See Marotta-Wurgler, 38 J Legal Stud at 333-37 & table 4 (cited in note 15).

subjects, ranging from whether software should be classified as a good under Article 2 of the UCC²⁰ to whether software publishers can use EULAs to extend protections granted by intellectual property laws.²¹ One of the most contentious issues has been whether terms presented after payment, generally in the form of shrinkwraps or PNTLs, where buyers cannot see the terms of the contract until after purchase, should become part of the agreement between the parties.²² Similarly, courts have struggled with whether browsewraps, in which sellers present their terms via hyperlinks at the bottom of their corporate web pages, present sufficient notice and “opportunity to read” before requiring a manifestation of assent.²³ The conflicting case law that emerged as a result of this has generated much uncertainty and has increased the cost of doing business for both buyers and sellers alike.

As noted earlier, despite multiple attempts to harmonize the law of software contracts, most proposals were unsuccessful. Article 2B of the UCC failed to obtain the support of the ALI, mostly because it was perceived as being too seller friendly.²⁴ The proposed law then became the UCITA, which was enacted only in Maryland and Virginia and was met with harsh criticism. One of the most serious objections to UCITA was that it embraces the enforcement of shrinkwraps and PNTLs. Critics fear that sellers will take advantage of delayed disclosure to include self-serving terms.²⁵

²⁰ See *Micro Data Base Systems, Inc v Dharma Systems, Inc*, 148 F3d 649, 654 (7th Cir 1998); *Advent Systems Ltd v Unisys Corp*, 925 F2d 670, 675–76 (3d Cir 1991). See also UCC § 2-105 (defining “goods” as “all things . . . which are movable at the time of identification to the contract of sale”).

²¹ See, for example, *ProCD, Inc v Zeidenberg*, 86 F3d 1447, 1453–55 (7th Cir 1996); *Softman Products Co v Adobe Systems Inc*, 171 F Supp 2d 1075, 1089 (CD Cal 2001).

²² Compare *Step-Saver Data Systems, Inc v Wyse Technology*, 939 F2d 91, 98–105 (3d Cir 1991); *Arizona Retail Systems, Inc v Software Link, Inc*, 831 F Supp 759, 764–66 (D Ariz 1993), with *M.A. Mortenson Co v Timberline Software Corp*, 998 P2d 305, 313 (Wash 2000).

²³ See Ben-Shahar, 5 Eur Rev Cont L at 9–12 (cited in note 13) (describing and challenging court decisions and academic arguments that browsewrap licenses are not binding because of a lack of consent).

²⁴ See Jessica Litman, *The Tales That Article 2B Tells*, 13 Berkeley Tech L J 931, 939 (1998). See also Consumer Project on Technology, *Protest Page on Uniform Commercial Code Article 2B*, online at <http://www.cptech.org/ucc/> (visited Oct 22, 2010) (giving an overview of Article 2B and compiling unfavorable literature).

²⁵ See, for example, Jean Braucher, *The Failed Promise of the UCITA Mass-Market Concept and Its Lessons for Policing of Standard Form Contracts*, 7 Lewis & Clark J Small & Emerging Bus L 393, 396 (2003); Jean Braucher, *Delayed Disclosure in Consumer E-commerce as an Unfair and Deceptive Practice*, 46 Wayne L Rev 1805, 1841–42 (2000); Mark A. Lemley, *Beyond Preemption: The Law and Policy of Intellectual Property Licensing*, 87 Cal L Rev 111, 122 (1999); Americans for Fair Electronic Commerce Transactions, *Why We Opposed UCITA*, online at <http://www.ucita.com/why.html> (visited Oct 22, 2010) (citing the seller-friendly implications of the law). But see Marotta-Wurgler, 38 J Legal Stud at 333 (cited in note 15) (presenting evidence showing that PNTLs include no less consumer friendly terms). More recently, critics have focused on proposed amendments to Article 2 of the UCC, which explicitly exclude information goods from

In May 2009, the ALI approved the Principles of the Law of Software Contracts. One of the Principles' biggest deviations from UCITA regards contract formation. The Principles reject delayed or nonconspicuous contract disclosure as an acceptable contract formation mechanism due to a belief that this might contribute to low contract readership and prevent the creation of an informed minority of shoppers.²⁶ Recent research has shown that this concern is indeed legitimate. In a recent large-sample study examining the online shopping behavior of consumers to sixty-six software companies, Yannis Bakos, David R. Trossen, and I found that that only about 1 in 1,000 shoppers chose to read the fine print and that this number was insufficient to constitute an informed minority.²⁷

To address this problem, the drafters embraced a regime that focuses on disclosure.²⁸ The hope is that increased disclosure will help create an informed minority of consumers as well as make it easier for watchdog groups to access terms and spread the word about unsavory provisions. Sellers who wish to maintain their reputations and level of sales will thus respond to increased scrutiny by offering more desirable terms.²⁹ The relevant provision is § 2.02, which provides safeguards for mass-market retail transactions by outlining a series of seller "best practices" with respect to disclosure that, if followed, ensure enforcement of a seller's terms.

Specifically, the Principles ask that software vendors, both online and brick-and-mortar, post the terms of their license agreements in a "reasonably accessible" manner on their websites.³⁰ To comply with this provision, sellers who offer physical copies of software and shrinkwrap their EULAs must establish an online presence.³¹

its scope. The fear is that courts currently relying on Article 2 of the UCC to address software licensing issues will turn to UCITA for guidance.

²⁶ See *ALI Principles* at 112–16 (cited in note 1) (determining that market forces were not enough to prevent "unsavory terms," partially because current licensing practices inform an insufficient number of consumers). Consider also Robert A. Hillman, *Online Consumer Standard Form Contracting Practices: A Survey and Discussion of Legal Implications*, in Jane K. Winn, ed., *Consumer Protection in the Age of the "Information Economy"* 283, 291–92 (Ashgate 2006).

²⁷ See Bakos, Marotta-Wurgler, and Trossen, *Does Anyone Read the Fine Print?* at *36–37 (cited in note 17).

²⁸ See *ALI Principles* § 2.02, comment e at 131–32 (cited in note 1).

²⁹ *ALI Principles* § 2.02, comment e at 131–32 (cited in note 1).

³⁰ *ALI Principles* § 2.02(c)(1) at 121 (cited in note 1) ("A transferee will be deemed to have adopted a standard form as a contract if the standard form is reasonably accessible electronically prior to the initiation of the transfer at issue."). The comments state that "transferors should adopt the best practices of subsection (c) to ensure enforcement of the form." *ALI Principles* § 2.02, comment b at 124 (cited in note 1). Even terms that comply with § 2.02(c)(1), however, would be subject to a claim that the terms are unconscionable or against public policy. See *ALI Principles* § 2.02, comment b at 124 (cited in note 1).

³¹ See *ALI Principles* § 2.02, comment c at 127–28 (cited in note 1). The Principles ask that notice and availability of terms be conspicuously available via a hyperlink before purchase and

While these new rules will certainly affect the business practices of brick-and-mortar retailers, it is e-commerce practices that will be most affected. Subsection 2.02(c)(3) prescribes that sellers who sell their software through their corporate websites must use clickwraps.³² Specifically, to be enforceable, buyers must click on an “I agree” icon next to a scroll box containing the text of the license. The drafters note that “[t]his form of clickwrap closely resembles traditional modes of agreeing to paper standard forms.”³³ Since it is cheap to change a browsewrap into a clickwrap, the drafters reason that this change should not be controversial. The drafters note that unless a transferee is familiar with the terms due to previous dealings, terms presented in a browsewrap format would not constitute sufficient notice.³⁴

If this form of disclosure succeeds in increasing the number of informed consumers, then it is clearly superior to other, more intrusive alternatives that might be costlier to implement. For the reasons noted earlier, however, if contract readership remains unaffected by these new rules, then adopting a regime of increased disclosure could be potentially harmful.

Increased disclosure regimes have been broadly criticized for being ineffective. For instance, Omri Ben-Shahar argues that disclosure regulations that seek to increase the opportunity to read contracts are unlikely to have *any* effect on consumer behavior, because consumers generally ignore fine print, regardless of how accessible it is.³⁵ Ben-Shahar and Carl E. Schneider report how mandatory disclosure regimes have failed in a variety of contexts and advocate abandoning this form of regulation.³⁶ And in earlier work, I found that making contracts more accessible on the web by reducing the number of

that the transferee “signify agreement at the end of or adjacent to an e-standard form or, in the case of a standard form printed on or attached to a package . . . must fail to exercise the opportunity to return the packaged software unopened . . . within a reasonable time.” *ALI Principles* § 2.02, comment c at 127 (cited in note 1).

³² See *ALI Principles* § 2.02(c)(3) at 121 (cited in note 1). The relevant provision states that “in the case of an electronic transfer of software, the transferee signifies agreement at the end of or adjacent to the electronic standard form.”

³³ *ALI Principles* § 2.02, comment c at 129 (cited in note 1). They also explain that “[u]nder subsection (c)(3), a mere screen reference to terms that can be found somewhere else on the site would be insufficient as would a scroll-down window containing the standard form if the ‘I agree’ icon is not at the end of or adjacent to the standard form.” *ALI Principles* § 2.02, comment c at 129 (cited in note 1).

³⁴ *ALI Principles* § 2.02, comment b at 124 (cited in note 1).

³⁵ See Ben-Shahar, 5 *Eur Rev Cont L* at 5 (cited in note 13).

³⁶ Ben-Shahar and Schneider, *The Failure of Mandated Disclosure* at *54–66 (cited in note 13).

mouse clicks it takes to access them does not affect contract readership in any significant way.³⁷

Despite the possible shortcomings of disclosure regimes, the drafters defend their approach by arguing that even if it does not work, increasing disclosure is arguably a cheap solution that, unlike more intrusive alternatives, is unlikely to create any distortions.³⁸ They also suggest that because business users are more likely to read disclosed terms, disclosure might help that subset of buyers. Finally, presenting consumers with an opportunity to read supports Karl Llewellyn's idea of individual assent and autonomy, even if most consumers do not read.³⁹ If adopted by courts, the Principles will affect the way buyers and sellers contract online for years to come. It is thus important to test whether the Principles' recommendations will succeed in increasing the number of informed consumers and in creating an informed minority of shoppers capable of disciplining sellers. This Article provides empirical evidence on this question.

II. AN EMPIRICAL ASSESSMENT OF THE PRINCIPLES' APPROACH

To assess whether increased EULA disclosure increases readership, I studied the browsing and shopping behavior of online consumers of eighty-one software retailers who sell their products through their corporate websites and who also make their EULAs available somewhere on their sites. I measured the proportion of shoppers, variously defined, who chose to become informed about the EULAs that govern the featured software as a function of whether they are presented as clickwraps or browsewraps.

A. Data and Sample Construction

This Article uses the clickstream data set introduced by Bakos, Marotta-Wurgler, and Trossen. These data track the Internet browsing behavior of 92,411 US households during January 2007 and were collected by a major online research company that tracks the browsing behavior of a representative panel of US households.⁴⁰ Each browsing "session" captured whether the household member initiated

³⁷ Marotta-Wurgler, *Does Disclosure Matter?* at *4 (cited in note 16) (noting that subtracting one mouse click from the number of clicks it takes to reach the contract increases readership by only 0.05 percent).

³⁸ *ALI Principles* § 2.02, comment h at 134 (cited in note 1).

³⁹ *ALI Principles* § 2.02, comment h at 134 (cited in note 1) (noting that the amount of information disclosure will most likely overload readers but arguing that reputational concerns will help regulate transferor's terms even if readership does not increase).

⁴⁰ For a detailed description of the data collection process, see Bakos, Marotta-Wurgler, and Trossen, *Does Anyone Read the Fine Print?* at *17–18 (cited in note 17).

a secure (that is, encrypted) connection, and each website visited has a unique identifier for the company or division that owns that web server. The data also contain demographic information about the household.

The sample of browsing sessions under study includes only visits to online software retailers that sell their products on their corporate websites and that make their contracts available somewhere on the sites before or during the checkout process.⁴¹ The sample excludes freeware providers, peer-to-peer software providers, web hosting companies, and companies that do not sell their software through their corporate websites. The sample also excludes firms with fewer than fifty unique visitors who visited at least two pages in a given month. Ultimately, 47,399 households contributed to the sample by participating in at least one session that satisfied these criteria during the sample period, and collectively these households visited eighty-one different software retailers.⁴²

I collected all of the URLs that correspond to EULAs available on each seller's website. I also collected company and product information that might affect a shopper's propensity to become informed about EULA terms. As reported in Bakos, Marotta-Wurgler, and Trossen, the average revenue of the eighty-one sample companies was \$1.52 billion and the median was \$6 million. The average age of these companies since incorporation was 16.7 years (the median was 14). Regarding product characteristics, which might also affect the demand to learn about EULA terms, the average of the median prices for the products offered on each website was \$352, and the median of those prices was \$49. Sixty-eight percent of the sample products for which I gathered EULAs were targeted to consumers or home offices as opposed to larger firms. The products were spread across software categories (for example, spreadsheet, antivirus, and so on).⁴³

B. Contract Accessibility

To measure contract accessibility and disclosure, I collected *all* of the EULA URLs available on the companies' websites. Some companies offered only one product and posted the EULA for that product.

⁴¹ See Marotta-Wurgler, *Does Disclosure Matter?* at *13–15 (cited in note 16) (describing the method used to select companies and describing their general characteristics).

⁴² Bakos, Marotta-Wurgler, and Trossen used a sample of fifty-six retail and ten freeware companies. The companies in this sample included all fifty-six retailers studied in that paper as well as twenty-five additional companies. The latter were not part of the original sample because shoppers are presented with the EULAs during the checkout process, thus preventing us from measuring shoppers' intent to become informed about terms voluntarily.

⁴³ For additional detail on the sample companies and households, see Bakos, Marotta-Wurgler, and Trossen, *Does Anyone Read the Fine Print?* at *20–21, 24–25 (cited in note 17).

Most companies offered several products. Some used the same EULA for all of their products, and others had different EULAs for each product, including present and past versions. I recorded every EULA posted. There are 240 unique URLs corresponding to EULAs for our sample companies.

The Principles distinguish between clickwraps and browsewraps. For each firm in the sample, I recorded in which of these two basic manners EULAs were disclosed.⁴⁴ Clickwraps can be further subdivided into two types. In one type, the buyer is asked to acknowledge the EULA by clicking “I agree” below a scroll box that contains the terms. As noted earlier, this is the type of clickwrap that the drafters would deem enforceable.⁴⁵ Most sellers that use clickwraps do so in a slightly different way. They also ask the buyer to click “I agree,” but they require another click on a nearby hyperlink entitled “End User License Agreement” before the contract is presented. Other companies in the sample make their contracts available on their websites but require buyers to voluntarily seek them out. They may locate these browsewraps one or more clicks away from the natural path of purchase.

The distribution of contract accessibility by company is reported in Table 1. A total of twenty-five firms, or about 31 percent of the firms in the sample, use clickwraps. Of these, three are of the scroll box type and twenty-two are of the hyperlink type described above. The remaining fifty-six firms use browsewraps to present EULA terms.

TABLE 1. EULA LOCATION SUMMARY STATISTICS:
BROWSEWRAPS VERSUS CLICKWRAPS

<u>Contract Accessibility</u>	<u>N</u>	<u>Frequency</u>
Clickwrap	25	30.86%
Browsewrap	56	69.14%
Total	86	100%

Note: Browsewraps are contracts presented as hyperlinks on sellers’ web pages that generally require one or more clicks to access from the main page. Clickwraps are contracts presented next to boxes with “I agree” icons next to them that consumers must click on to continue with a particular transaction.

⁴⁴ For a more nuanced study of increased contract accessibility on readership, see Marotta-Wurgler, *Does Disclosure Matter?* at *18–26 (cited in note 16). That paper measures contract accessibility as the number of mouse clicks it takes to access the EULA from the most natural path to purchase, from zero to up to six clicks away.

⁴⁵ See note 33 and accompanying text.

1. Shoppers and shopping visits.

Our data set includes the Internet browsing activity of all panel visitors to the sample companies. But people access software retailers' corporate websites for reasons other than shopping. For example, some are looking for a patch to fix a problem with software that they already own, others are looking to download a new update, others are looking for quarterly financial statements, and so on. I thus needed to identify those visitors who were shoppers in the sense that they were potentially interested in buying a product.

I followed the approach in the Bakos, Marotta-Wurgler, and Trossen study to identify shopping-oriented visits, which I discuss briefly below. I attempted to exclude visits that did not access company servers dedicated to shopping or purchasing activities. I defined a "company visit" as all page views (URL accesses) from a company's website within a single user session. I adopted the approach widely used in the clickstream literature by identifying shopping visits based on the intensity of the company visit. Previous research has found that the more pages a user visits on a retailer's site, the more likely the user is to be a shopper.⁴⁶

The first task was to define a company visit. Shopping over the Internet can be different from shopping at brick-and-mortar stores. Internet shoppers can visit a company multiple times at any time of the day from their own homes with just a few mouse clicks. Indeed, researchers have found that shoppers tend to visit a store repeatedly within a month while contemplating a single purchase.⁴⁷ I used two definitions of a company visit. The narrowest was that used by the data provider and some articles in the literature, and it considers a single visit as a period of web-browsing activity separated by at least thirty minutes of inactivity.⁴⁸ A user can have multiple visits over a day or several days. The broadest definition takes into consideration the possibility that a shopper may visit a company on multiple occasions, over the span of several days, before deciding for or against a purchase. For this definition of a company visit, I aggregated the number of visits to a unique company in a given month. The goal was to establish a

⁴⁶ See, for example, Wendy W. Moe and Peter S. Fader, *Dynamic Conversion Behavior at E-commerce Sites*, 50 *Mgmt Sci* 326, 328 (2004). For a detailed account and a list of sources, see Bakos, Marotta-Wurgler, and Trossen, *Does Anyone Read the Fine Print?* at *21–23 & nn 57–59 (cited in note 17).

⁴⁷ Eric J. Johnson, et al, *On the Depth and Dynamics of Online Search Behavior*, 50 *Mgmt Sci* 299, 301 n 2 (2004) (finding that less than 1 percent of all month-long sessions in their sample contained more than one purchasing transaction with a given company).

⁴⁸ See, for example, Moe and Fader, 50 *Mgmt Sci* at 331–32 (cited in note 46).

range such that the typical shopping visit would lie somewhere in the middle of these two definitions.

The second task was to determine which company visits can be considered shopping visits. I used three definitions of a shopping visit. The broadest was a visit to at least two pages of the given company's website. The more restrictive definition required at least five page views. This is more likely to exclude casual browsers, but is still broad. The most restrictive definition of "shopper" is one that includes only those visitors who have actually selected a product and initiated a checkout or payment in a given session. Starting a checkout process indicates that a transaction was at least contemplated, even if in a few cases the purchase was ultimately not completed. This last definition of "shopping visit" captures only serious shoppers but is overly restrictive, as it excludes shopping visits that might have resulted in a purchase but did not. Given that there is no perfect way to identify shoppers with the data available, these three definitions can again be viewed as providing some upper and lower bounds on the number of shopping-oriented visits.

2. Reading.

Obviously, we can observe only whether a given page was visited, not whether its content was read or understood. I defined readership as remaining on the URL that contained a EULA for at least one second. This is conservative in that it certainly overcounts the effective rate of readership. That is, this measure gives the informed minority hypothesis the strongest benefit of the doubt. The typical EULA is thousands of words long and cannot be read in one or even several seconds. Furthermore, some of the EULA page clicks may be accidental, or the browser may be looking for other information that is by chance also on the page that contains the EULA.

III. ARE CLICKWRAPS MORE LIKELY TO BE READ THAN BROWSEWRAPS?

Tables 2 and 3 summarize the characteristics of visits to companies that present their terms as clickwraps of the hyperlink type or as browsewraps. This analysis excludes visits to the three companies with clickwraps of the scroll box type—the precise form of clickwrap preferred by the ALI—because all shoppers who begin the checkout process are automatically presented with the text of the EULA. This prevents us from observing the voluntary readership rate. I address visits to these companies separately.

Table 2 measures visits as uninterrupted sessions and Table 3 measures visits by unique users, aggregating all of the monthly sessions.

Each table presents data for each definition of a shopping visit. I report the number of such visits to companies with clickwraps and browsewraps and the average and median number of page views. I also report the number of visits in which the shopper accessed a EULA as well as the average and median length of time spent on the EULA URL when it was accessed.

The top panel of Table 2 looks at uninterrupted visits by visitors who clicked on at least two pages during a company visit. There were 11,184 visits to companies that make their contracts available via a clickwrap, including repeat visits. The average and median numbers of pages viewed during these visits are nine and four, respectively. Yet of all of these thousands of visits, only eight (or 0.07 percent) included EULA access.

This is not much of an improvement over the readership rate of browsewraps. There were 120,545 visits to companies that use browsewraps, and the average and median numbers of pages viewed at those companies are twelve and five, respectively. The total number of EULA visits for these companies was 40 out of 120,545, or 0.03 percent of all visits. While the observed low readership rate here of browsewraps is consistent with the Principles' view that they might provide insufficient notice or be too hard to find, the fact that the readership rate of clickwraps is also virtually nil suggests that access is not the fundamental constraint on readership.

The last columns summarize the time spent on the EULA URL when it was accessed. The median time spent on EULAs as clickwraps was sixty-one seconds and the median for browsewraps was thirty seconds. As noted in the Bakos, Marotta-Wurgler, and Trossen study, the average EULA length is about 2,300 words long. Given the time spent on these contracts, it is unlikely that shoppers became meaningfully informed after having accessed them. Not only are very few shoppers choosing to read the terms, but those who do read them often do not take the time required to fully understand them.⁴⁹

When a shopping visit is defined more strictly, as a visit in which at least five pages in a company website were accessed, the picture is similar. The readership rate of EULAs approximately doubles for both clickwraps and browsewraps, but it remains miniscule in both cases, at under 0.2 percent.

The bottom panel of Table 2 considers visits in which the shopper actually initiated a checkout process. In this case, we can be sure that the visitors were serious shoppers. Here *all* of the visitors to clickwrap

⁴⁹ The data cannot track whether consumers saved or printed the terms. If that were the case, then the time spent on a EULA would not reflect the time spent reading it.

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EULA sites are aware of the license because the checkout process required them to agree explicitly to it. Still, only 2 out of 381 shoppers chose to actually view the license. This suggests that increased disclosure may simply be unable to induce shoppers to study terms, even when they are being required to confirm their assent.

TABLE 2. CLICKWRAPS VERSUS BROWSEWRAPS:
VISITS MEASURED AS UNINTERRUPTED SESSIONS

Contract accessibility	N of company visits	Mean N of pg. acc. per company visit (s.d.)	Median N of pg. acc. per company visit	N of EULA visits (% of company visits)	Mean length of EULA access in seconds (s.d.)	Median length of EULA access in seconds
Panel A. At Least 2 Pages Accessed during Visit						
Clickwrap	11,184	8.5 (23.6)	4	8 (0.07)	139.6 (223.8)	61
Browsewrap	120,545	12.4 (26.9)	5	40 (0.03)	46.9 (43.1)	29.5
Panel B. At Least 5 Pages Accessed during Visit						
Clickwrap	4,513	17.1 (35.4)	9	7 (0.16)	150.4 (239.5)	58
Browsewrap	67,769	19.9 (34.0)	10	37 (0.05)	46.8 (44.74)	29
Panel C. At Least 1 Secure Checkout Page Accessed during Visit						
Clickwrap	381	13.7 (30.8)	6	2 (0.52)	372 (444.1)	372
Browsewrap	4,485	13.11 (30.6)	5	4 (0.09)	90 (68.1)	76.5

Note: Summary statistics of visits to companies with clickwraps and browsewraps, measured as uninterrupted sessions. Results are presented for three different definitions of a visit: two or more pages accessed, five or more pages accessed, and visits where a shopper placed a product in a shopping cart and began a secure checkout process. The first column indicates contract accessibility, measured as either a browsewrap or a clickwrap. The second column reports the number of visits to companies according to their contract accessibility. The third and fourth columns report the average and median number of pages visited during a company visit. The fifth reports the number of visits in which the visitor accessed a EULA. The remaining columns report the average and median time spent on the EULA.

Table 3 aggregates all monthly sessions of an individual user into single company visits. The results are similar to those in Table 2. For all cases, the total number of visits is reduced because multiple visits by individual users are combined. The overall results of Table 3, however, indicate that the general impressions from Table 2 do not depend on the precise definition of company visits. The very highest fraction of readers among retail shoppers across all shopper and session definitions

is 1.46 percent. Only 3 out of the total of 205 buyers who were forced to acknowledge the EULA actually read it.⁵⁰

TABLE 3. CLICKWRAPS VERSUS BROWSEWRAPS:
VISITS MEASURED AS MONTHLY AGGREGATES

Contract accessibility	N of company visits	Mean N of pg. acc. per company visit (s.d.)	Median N of pg. acc. per company visit	N of EULA visits (% of company visits)	Mean length of EULA access in seconds (s.d.)	Median length of EULA access in seconds
Panel A. At Least 2 Pages Accessed during Visit						
Clickwrap	6,100	15.6 (57)	4	8 (0.13)	139.6 (223.8)	61
Browse-wrap	63,272	23.66 (79.3)	7	39 (0.06)	51.4 (45.7)	30
Panel B. At Least 5 Pages Accessed during Visit						
Clickwrap	3,011	29.0 (79.0)	11	7 (0.23)	150.4 (239.5)	58
Browse-wrap	40,697	35.3 (96.9)	14	36 (0.09)	49.5 (45.5)	29.5
Panel C. At Least 1 Secure Checkout Page Accessed during Visit						
Clickwrap	205	79.7 (165.9)	27	3 (1.46)	283.3 (349.5)	106
Browse-wrap	2,786	34.0 (79.1)	10	4 (0.14)	90 (68.1)	76.5

Note: Summary statistics of visits to companies with clickwraps and browsewraps, measured as monthly aggregates. Results are presented for three different definitions of a visit: two or more pages accessed, five or more pages accessed, and visits where a shopper placed a product in a shopping cart and began a secure checkout process. The first column indicates contract accessibility, measured as either a browsewrap or a clickwrap. The second column reports the number of visits to companies according to their contract accessibility. The third and fourth columns report the average and median number of pages visited during a company visit. The fifth reports the number of visits in which the visitor accessed a EULA. The remaining columns report the average and median time spent on the EULA.

Tables 2 and 3 contain six distinct estimates of the effect of mandating disclosure on the readership rate. In the first panel of Table 2, the increase is 0.04 percent (0.07 percent minus 0.03 percent), for example. Some of these are more likely to approach lower bounds and others more likely to represent upper bounds. Averaging across the six

⁵⁰ The issue is not one of sample size. The asymptotic standard error of the mean of the binomial distribution is $(p \times (1 - p)/n)^{1/2}$. Inserting $p = 0.0146$ and $n = 205$ gives an estimate of the standard error of 0.008. Roughly speaking, the 95 percent confidence interval for the estimated readership rate is $0.0146 \pm 1.96 \times 0.008$, or 0 to 0.03—that is, 0 percent to 3 percent.

estimates yields 0.36 percent, but in any case the range is narrow in absolute terms.

These results raise serious doubts about whether disclosure will, or even can, have an impact on readership as substantial as that envisioned by the drafters of the Principles. There is one more category of disclosure to examine, however, which includes the very best-disclosed EULAs—clickwraps of the scroll box type. These contracts are presented in a scroll box next to the “I agree” icon and do not ask consumers even to click on a single link. Because all shoppers who decide to purchase a product are presented with the text of the EULA regardless of their interest in reading it, I can measure only the time spent on these pages to assess shoppers’ true interest level. In interpreting the time spent on these pages, one must consider that these companies also require the shopper to enter his name, billing address, and credit card information on the same page on which the EULA text appears.⁵¹

For uninterrupted sessions, there were 7,296 (unreported) visits to these firms under the broadest definition of shopping visit. Of these, 523 (or 7.13 percent) involved accessing a EULA. The best way to interpret this result is that 7.13 percent of those visiting these companies started a checkout process. The average time spent on the page containing the EULA was 117 seconds, and the median was 65 seconds. Given that these companies require shoppers to enter personal information *as well as* agree to a lengthy EULA, most of the time spent on this page was not spent reading the EULA text. More precisely, if the average EULA is 2,300 words long and the average adult reading rate of *non-legal* is 250 to 300 words per minute, then the shopper needs 10 minutes just to read the full contract, leaving aside the other tasks required on the page. The results are similar under other definitions of shopping and company visits. Of all combinations of definitions, the highest median time spent on the EULA-containing page was ninety-four seconds. Moreover, I found in earlier work that even those few consumers who read are not swayed by what they read in making their purchase decisions.⁵²

In unreported logistic regressions, I regressed the probability that a EULA will be read on contract accessibility and controlled for company, product, and shopper characteristics.⁵³ I find that *mandating* assent

⁵¹ This varies by firm. Some firms require shoppers to enter their names and addresses on the EULA page, while others require that shoppers enter their credit card information.

⁵² See Marotta-Wurgler, *Does Disclosure Matter?* at *27–29 (cited in note 16) (finding that the likelihood of purchase is not affected by the number of terms that favor the seller).

⁵³ Complete product controls include whether the product is offered on a subscription basis, the natural log of the median product price, whether the product is targeted to business or

has, if anything, a small and statistically significant negative effect on contract readership (0.2 percent at the 5 percent level of significance) in the case of the two broader definitions of shopping visits.⁵⁴ In the case of secured checkouts, mandating assent increases readership by a statistically insignificant 0.7 percent. The results hold even after considering that some products, such as Microsoft Office, may be repeat purchases and thus their EULAs are less likely to be read.⁵⁵

Although common sense suggests that such marginal increases in readership rates are too small to induce an informed minority equilibrium in which comparison shopping effectively polices terms, this can be demonstrated more quantitatively. Disregarding the impact of control variables, which as just noted diminishes the overall higher readership rate associated with clickwraps, the highest fraction of EULA accesses in our sample was found in the monthly aggregated sessions of shoppers who initiated a checkout session. Even among these most serious shoppers, the fraction of EULA access was under 1.5 percent (3 out of 205). Using estimates for the requisite size of the informed minority from the Bakos, Marotta-Wurgler, and Trossen study, I find that even this number is too small to discipline sellers into offering desirable terms.⁵⁶

The general conclusion is clear: no matter how prominently EULAs are disclosed, they are almost always ignored.

IV. IMPLICATIONS

Disclosure regimes have long been the preferred approach to address problems stemming from imperfect information in a range of consumer contexts. The Principles follow this tradition and recommend increased disclosure as a device to increase readership and

consumer end users, and whether the product is offered with a trial version. Company controls include the natural log of revenue, whether the company is publicly traded, and the natural log of age. Shopper controls include gender, the natural log of age, and the natural log of income.

⁵⁴ For a more nuanced study of the effects of contract accessibility on readership, see Marotta-Wurgler, *Does Disclosure Matter?* at *20 (cited in note 16) (finding that increased contract access—that is, lower number of mouse clicks it takes to access the contract—is indeed associated with increased readership, but that the total number of readers is extremely small).

⁵⁵ See Bakos, Marotta-Wurgler, and Trossen, *Does Anyone Read the Fine Print?* at *20–21, 35–36 (cited in note 17). As in that paper, I checked whether shoppers are less likely to read the EULAs of products that were, in my judgment, more likely to be purchased repeatedly. Users that become familiar with a product that is continuously updated may feel less need to concern themselves with the EULA. Other products, such as test preparation software, are less likely to be purchased repeatedly. I created a dummy variable that equals 1 if the company marketed products that were, in our judgment, likely to be repeat purchases. I found no relationship between the nature of the use of the software and users' propensity to access EULAs.

⁵⁶ For a thorough analysis finding that EULAs have little impact on consumer behavior, see Marotta-Wurgler, *Does Disclosure Matter?* at *29–31 (cited in note 16).

comparison shopping for standard terms. This Article evaluates whether this recommendation is likely to work.

Using the clickstream data of tens of thousands of households for a period of one month, I found that clickwraps are not read at significantly higher rates. Depending on the methodology, I estimate that moving from browswraps to clickwraps would increase shoppers' readership rates by 0.04 percent to 1.32 percent relative to a baseline readership rate of around 0 percent. An average estimate of the effect across six methodologies is 0.36 percent. Put differently, switching to clickwraps would be expected to generate 1 more reader out of every 278 shoppers. I also find that the time spent on EULA URLs, even when they are accessed, is usually too small to allow for more than a cursory review. These findings suggest that the Principles' goal of increasing disclosure to alleviate possible market failures will not increase readership or economic pressure on sellers.

It is also worth noting that there is evidence indicating that delayed or reduced contract disclosure is not associated with more pro-seller terms. Recent evidence shows that the terms of sellers that use PNTLs are no more one-sided than those of sellers that disclosed their contracts on their sites in the form of browswraps or clickwraps.⁵⁷ This suggests that sellers are not using delayed or inconspicuous disclosure to sneak in particularly unfavorable terms.

An argument made in favor of disclosure is that even if it does not increase readership, it honors contract law's "opportunity to read" and protects individual autonomy.⁵⁸ Another is that pressure to increase disclosure might encourage reputationally constrained sellers to offer reasonable terms. The problem with these positions is that these relatively intangible benefits need to be weighed against the real costs of changing policy.

There are a number of such costs. Some are direct costs to sellers. In my sample, only three out of eighty-one sellers currently use clickwraps of the specific type recommended by the Principles. A related cost is the lost business as a result of complicating the checkout process.⁵⁹

Other costs are hidden but potentially more significant. There is a possible opportunity cost insofar as ineffective change forestalls real change. Once a regulation is in place, it might take decades to revise its effectiveness and implement a new approach.⁶⁰ In the meantime,

⁵⁷ Marotta-Wurgler, 38 J Legal Stud at 333–37 & table 4 (cited in note 15).

⁵⁸ See *ALI Principles* § 2.02, comment e at 132 (cited in note 1).

⁵⁹ See Mann and Siebeneicher, 108 Colum L Rev at 1000 & n 57 (cited in note 14).

⁶⁰ The Truth in Lending Act, 15 USC § 1601 et seq, has been criticized on these grounds. See, for example, FTC, *Improving Consumer Mortgage Disclosures: An Empirical Assessment of Current and Prototype Disclosure Forms 2–7* (June 2007), online at <http://www.ftc.gov/>

the mere appearance of a new policy embraced by authorities might induce courts to be more lax about policing terms, to the extent that they are lulled into thinking that terms are now the product of a well-functioning market.⁶¹ As noted earlier, this concern is also shared by the drafters of the Principles.⁶²

It is important to be precise about the policy implications of these findings. I do not provide any evidence regarding whether EULA terms are indeed too unfavorable to the consumer—whether they are one-sided to a degree that buyers would take note if they were made to understand them. Sellers could be constrained by reputation or the fear of litigation and could be writing reasonable contracts in most cases. What I show is that *if* there are inefficiencies in this market, then increased disclosure *alone* cannot be counted upon to make a difference, and it is dangerous to believe otherwise.

The evidence here also implicitly offers guidance on which types of intervention might be more effective in increasing economic pressure on sellers. Given the low readership rates regardless of accessibility, the problem appears to involve the expected net benefits to readership. Many EULAs are too long and complicated for one to rationally take the time to read, especially when they govern the use of moderately priced products. Several consumer watchdog groups maintain websites that identify EULAs with onerous terms.⁶³ Unfortunately, Bakos, Marotta-Wurgler, and Trossen find that very few people access these websites either.⁶⁴ There is even a program that users can install for free that screens EULA terms and alerts consumers of possible pitfalls, but most software shoppers are not aware of it.⁶⁵

os/2007/06/P025505MortgageDisclosureReport.pdf (visited Oct 22, 2010). See also Ben-Shahar and Schneider, *The Failure of Mandated Disclosure* at *15–16 (cited in note 13).

⁶¹ See Hillman, 104 Mich L Rev at 853–55 (cited in note 13); Ben-Shahar and Schneider, *The Failure of Mandated Disclosure* at *59–60 (cited in note 13).

⁶² See note 13 and accompanying text.

⁶³ See, for example, Electronic Frontier Foundation, *The Terms-of-Service Tracker*, online at <http://www.tosback.org/timeline.php> (visited Oct 22, 2010) (tracking and publishing changes in the EULAs of fifty-six prominent online retailers); Andy Sternberg, *The Small Print Project*, online at <http://smallprint.netzoo.net/> (visited Oct 22, 2010) (maintaining a blog on EULA changes that could be unfavorable to consumers); Ars Technica, *Tech Policy*, online at <http://arstechnica.com/tech-policy> (visited Oct 22, 2010) (reporting on recent changes in Internet and technology policy including newsworthy changes in industry EULA policies).

⁶⁴ Bakos, Marotta-Wurgler, and Trossen, *Does Anyone Read the Fine Print?* at *33–34 (cited in note 17) (finding that in a large sample of shoppers, none visited a web page with information about EULAs). See also Marotta-Wurgler, *Does Disclosure Matter?* at *26 (cited in note 16) (arguing that even if consumers accessed EULA watchdog information, this would not change the fact that disclosure does not change consumers' behavior).

⁶⁵ The company Javacool Software offers a version of its “EULalyzer” software for free. Alexa, a site that measures Internet traffic, reports that its traffic rank is currently 78,085, thus indicating very few monthly visits. See Alexa Internet, Inc, *JavacoolSoftware.com*, online at <http://www.alexa.com/siteinfo/javacoolsoftware.com#> (visited Oct 16, 2010). For a manufacturer

Simplifying and standardizing the presentation format of contracts would likely be helpful. This might change consumers' expectations about the costs of reading contracts and might induce them to read more, although one should be realistic about the actual magnitude of any increase in readership. Alternatively, a brief, standardized label summarizing the key provisions on or near the product description page—in a manner similar to food nutrition labels—could only be helpful.⁶⁶ Perhaps consumers could come to rely on standardized letter grades for contracts that have been approved by a credible and independent third party.⁶⁷ But again, each one of these changes would be costly to implement and should not be formally proposed by the authorities without evidence that these costs are outweighed by benefits. Studies like the one in this Article represent one approach to measuring the efficacy of alternative policy proposals.

It could also be the case that, in some cases, buyers would almost never find it worthwhile to become informed about terms. Given the low probability that an onerous term such as a forum selection clause will be triggered, consumers might be best served by becoming informed about EULAs only after an adverse event occurs.⁶⁸ It might then be helpful to consider easing consumers' abilities to seek redress ex post, as the threat of litigation can also discipline sellers into offering reasonable terms. Possible solutions would be to facilitate access to small claims courts and reconsider the desirability of forum selection clauses and class action waivers. The Principles indeed introduce some mandatory clauses in this context.

description and copy of the EULalyzer, see Javacool Software, *EULalyzer Personal*, online at <http://www.javacoolsoftware.com/eulalyzer.html> (visited Oct 22, 2010).

⁶⁶ The FTC has mandated standardized labeling in a variety of contexts. Examples include the Appliance Labeling Rule, the Fuel Ratings Rule, and the R-value Rule. See FTC, Appliance Labeling Rule, 72 Fed Reg 49948, 49948–49 (2007) (amending 16 CFR § 305); FTC, Automotive Fuel Ratings, 73 Fed Reg 40154, 40159 (2008) (amending 16 CFR § 306); FTC, Labeling and Advertising of Home Insulation: Trade Regulation Rule, 70 Fed Reg 31258, 31274 (2005) (“R-value Rule”) (amending 16 CFR § 460). Another example of standardized disclosure is the “Schumer Box,” which requires that certain credit cards terms be disclosed in a summarized and standardized fashion. See Elizabeth Renuart and Diane E. Thompson, *The Truth, the Whole Truth, and Nothing but the Truth: Fulfilling the Promise of Truth in Lending*, 25 Yale J Reg 181, 217–21 (2008). See also Clayton P. Gillette, *Preapproved Boilerplate*, in Omri Ben-Shahar, ed., *Boilerplate: The Foundation of Market Contracts* 95, 97–104 (Cambridge 2007) (arguing that government standardization of contract terms is undesirable because agencies are poorly equipped to create good terms); Oren Bar-Gill and Oliver Board, *Rethinking Disclosure, or Product Use Information and the Limits of Voluntary Disclosure* *16–26 (unpublished manuscript, 2010) (on file with author).

⁶⁷ This was proposed by Ben-Shahar, 5 Eur Rev Cont L at 22–25 (cited in note 13) (arguing that user-friendly metrics of product quality have been successful elsewhere and could be tried for contract terms, but conceding that there is not an obvious methodology to generate the rating).

⁶⁸ See Shmuel I. Becher and Tal Z. Zarsky, *E-contract Doctrine 2.0: Standard Form Contracting in the Age of Online User Participation*, 14 Mich Telecom & Tech L Rev 303, 320 (2008).

Such an approach moves closer to direct regulation of terms, however, which is always uncomfortable because the regulator is put in a difficult and paternalistic position. It is hard enough to determine optimal licensing terms in any one transaction but even harder to codify guidelines that would be beneficial in a broad majority of cases. Disclosure and suitable modifications of contract format may be steps in the right direction, but we must be realistic about whether the likelihood that even a well-designed combination of changes along these lines would ever be able to raise the level of awareness of EULA terms to a meaningful fraction. Before adopting this approach, we must move beyond anecdote and learn more about the extent to which terms now on offer are detrimental to consumer welfare.⁶⁹

⁶⁹ For a further discussion of consumer welfare, see Florencia Marotta-Wurgler, *What's in a Standard Form Contract? An Empirical Analysis of Software License Agreements*, 4 *J Empirical Legal Stud* 677, 680 (2007) (noting that most EULAs are seller-biased relative to the buyer-friendly default rules of UCC Article 2).

ProCD, INC. v. ZEIDENBERG, 86 F.3d 1447 (7th. Cir. 1996)

Before COFFEY, FLAUM, and EASTERBROOK, Circuit Judges.

EASTERBROOK, Circuit Judge.

[1] Must buyers of computer software obey the terms of shrinkwrap licenses? The district court held not, for two reasons: first, they are not contracts because the licenses are inside the box rather than printed on the outside; second, federal law forbids enforcement even if the licenses are contracts. 908 F. Supp. 640 (W.D. Wis. 1996). The parties and numerous amici curiae have briefed many other issues, but these are the only two that matter - and we disagree with the district judge's conclusion on each. Shrinkwrap licenses are enforceable unless their terms are objectionable on grounds applicable to contracts in general (for example, if they violate a rule of positive law, or if they are unconscionable). Because no one argues that the terms of the license at issue here are troublesome, we remand with instructions to enter judgment for the plaintiff.

I.

[2] ProCD, the plaintiff, has compiled information from more than 3,000 telephone directories into a computer database. We may assume that this database cannot be copyrighted, although it is more complex, contains more information (nine-digit zip codes and census industrial codes), is organized differently, and therefore is more original than the single alphabetical directory at issue in *Feist Publications, Inc. v. Rural Telephone Service Co.*, [499 U.S. 340](#) (1991). See Paul J. Heald, *The Vices of Originality*, 1991 Sup. Ct. Rev. 143, 160-68. ProCD sells a version of the database, called SelectPhone (trademark), on CD-ROM discs. (CD-ROM means "compact disc - read only memory." The "shrinkwrap license" gets its name from the fact that retail software packages are covered in plastic or cellophane "shrinkwrap," and some vendors, though not ProCD, have written licenses that become effective as soon as the customer tears the wrapping from the package. Vendors prefer "end user license," but we use the more common term.) A proprietary method of compressing the data serves as effective encryption too. Customers decrypt and use the data with the aid of an application program that ProCD has written. This program, which is copyrighted, searches the database in response to users' criteria (such as "find all people named Tatum in Tennessee, plus all firms with 'Door Systems' in the corporate name"). The resulting lists (or, as ProCD prefers, "listings") can be read and manipulated by other software, such as word processing programs.

[3] The database in SelectPhone (trademark) cost more than \$10 million to compile and is expensive to keep current. It is much more valuable to some users than to others. The combination of names, addresses, and sic codes enables manufacturers to compile lists of potential customers. Manufacturers and retailers pay high prices to specialized information intermediaries for such mailing lists; ProCD offers a potentially cheaper alternative. People with nothing to sell could use the database as a substitute for calling long distance information, or as a way to look up old friends who have moved to unknown towns, or just as a electronic substitute for the local phone book. ProCD decided to engage in price discrimination, selling its database to the general public for personal use at a low price (approximately \$150 for the set of five discs) while selling information to the trade for a higher price. It has adopted some intermediate strategies too: access to the SelectPhone (trademark) database is available via the America On-line service for the price America Online charges to its clients (approximately \$3 per hour), but this service has been tailored to be useful only to the general public.

[4] If ProCD had to recover all of its costs and make a profit by charging a single price - that is, if it could not charge more to commercial users than to the general public - it would have to raise the price substantially over \$150. The ensuing reduction in sales would harm consumers who value the information at, say, \$200. They get consumer surplus of \$50 under the current arrangement but would cease to buy if the price rose substantially. If because of high elasticity of demand in the consumer segment of the market the only way to make a profit turned out to be a price attractive to commercial users alone, then all consumers would lose out - and so would the commercial clients, who would have to pay more for the listings because ProCD could not obtain any contribution toward costs from the consumer market.

[5] To make price discrimination work, however, the seller must be able to control arbitrage. An air carrier sells tickets for less to vacationers than to business travelers, using advance purchase and Saturday-night-stay requirements to distinguish the categories. A producer of movies segments the market by time, releasing first to theaters, then to pay-per-view services, next to the videotape and laserdisc market, and finally to cable and commercial tv. Vendors of computer software have a harder task. Anyone can walk into a retail store and buy a box. Customers do not wear tags saying "commercial user" or "consumer user." Anyway, even a commercial-user-detector at the door would not work, because a consumer could buy the software and resell to a commercial user. That arbitrage would break down the price discrimination and drive up the minimum price at which ProCD would sell to anyone.

[6] Instead of tinkering with the product and letting users sort themselves - for example, furnishing current data at a high price that would be attractive only to commercial customers, and two-year-old data at a low price - ProCD turned to the institution of contract. Every box containing its consumer product declares that the software comes with restrictions stated in an enclosed license. This license, which is encoded on the CD-ROM disks as well as printed in the manual, and which appears on a user's screen every time the software runs, limits use of the application program and listings to non-commercial purposes.

[7] Matthew Zeidenberg bought a consumer package of SelectPhone (trademark) in 1994 from a retail outlet in Madison, Wisconsin, but decided to ignore the license. He formed Silken Mountain Web Services, Inc., to resell the information in the SelectPhone (trademark) database. The corporation makes the database available on the Internet to anyone willing to pay its price - which, needless to say, is less than ProCD charges its commercial customers. Zeidenberg has purchased two additional SelectPhone (trademark) packages, each with an updated version of the database, and made the latest information available over the World Wide Web, for a price, through his corporation. ProCD filed this suit seeking an injunction against further dissemination that exceeds the rights specified in the licenses (identical in each of the three packages Zeidenberg purchased). The district court held the licenses ineffectual because their terms do not appear on the outside of the packages. The court added that the second and third licenses stand no different from the first, even though they are identical, because they *might* have been different, and a purchaser does not agree to - and cannot be bound by - terms that were secret at the time of purchase. 908 F. Supp. at 654.

II.

[8] Following the district court, we treat the licenses as ordinary contracts accompanying the sale of products, and therefore as governed by the common law of contracts and the Uniform Commercial Code. Whether there are legal differences between "contracts" and "licenses" (which may matter under the copyright doctrine of first sale) is a subject for another day. See *Microsoft Corp. v.*

Harmony Computers & Electronics, Inc., 846 F. Supp. 208 (E.D. N.Y. 1994). Zeidenberg does not argue that Silken Mountain Web Services is free of any restrictions that apply to Zeidenberg himself, because any effort to treat the two parties as distinct would put Silken Mountain behind the eight ball on ProCD's argument that copying the application program onto its hard disk violates the copyright laws. Zeidenberg does argue, and the district court held, that placing the package of software on the shelf is an "offer," which the customer "accepts" by paying the asking price and leaving the store with the goods. *Peeters v. State*, 154 Wis. 111, 142 N.W. 181 (1913). In Wisconsin, as elsewhere, a contract includes only the terms on which the parties have agreed. One cannot agree to hidden terms, the judge concluded. So far, so good - but one of the terms to which Zeidenberg agreed by purchasing the software is that the transaction was subject to a license. Zeidenberg's position therefore must be that the printed terms on the outside of a box are the parties' contract - except for printed terms that refer to or incorporate other terms. But why would Wisconsin fetter the parties' choice in this way? Vendors can put the entire terms of a contract on the outside of a box only by using microscopic type, removing other information that buyers might find more useful (such as what the software does, and on which computers it works), or both. The "Read Me" file included with most software, describing system requirements and potential incompatibilities, may be equivalent to ten pages of type; warranties and license restrictions take still more space. Notice on the outside, terms on the inside, and a right to return the software for a refund if the terms are unacceptable (a right that the license expressly extends), may be a means of doing business valuable to buyers and sellers alike. See E. Allan Farnsworth, 1 *Farnsworth on Contracts* sec. 4.26 (1990); *Restatement (2d) of Contracts* sec. 211 comment a (1981) ("Standardization of agreements serves many of the same functions as standardization of goods and services; both are essential to a system of mass production and distribution. Scarce and costly time and skill can be devoted to a class of transactions rather than the details of individual transactions."). Doubtless a state could forbid the use of standard contracts in the software business, but we do not think that Wisconsin has done so.

[9] Transactions in which the exchange of money precedes the communication of detailed terms are common. Consider the purchase of insurance. The buyer goes to an agent, who explains the essentials (amount of coverage, number of years) and remits the premium to the home office, which sends back a policy. On the district judge's understanding, the terms of the policy are irrelevant because the insured paid before receiving them. Yet the device of payment, often with a "binder" (so that the insurance takes effect immediately even though the home office reserves the right to withdraw coverage later), in advance of the policy, serves buyers' interests by accelerating effectiveness and reducing transactions costs. Or consider the purchase of an airline ticket. The traveler calls the carrier or an agent, is quoted a price, reserves a seat, pays, and gets a ticket, in that order. The ticket contains elaborate terms, which the traveler can reject by canceling the reservation. To use the ticket is to accept the terms, even terms that in retrospect are disadvantageous. See *Carnival Cruise Lines, Inc. v. Shute*, [499 U.S. 585](#) (1991); see also *Vimar Seguros y Reaseguros, S.A. v. M/V Sky Reefer*, 115 S.Ct. 2322 (1995) (bills of lading). Just so with a ticket to a concert. The back of the ticket states that the patron promises not to record the concert; to attend is to agree. A theater that detects a violation will confiscate the tape and escort the violator to the exit. One could arrange things so that every concertgoer signs this promise before forking over the money, but that cumbersome way of doing things not only would lengthen queues and raise prices but also would scotch the sale of tickets by phone or electronic data service.

[10] Consumer goods work the same way. Someone who wants to buy a radio set visits a store, pays, and walks out with a box. Inside the box is a leaflet containing some terms, the most important of which usually is the warranty, read for the first time in the comfort of home. By Zeidenberg's lights, the warranty in the box is irrelevant; every consumer gets the standard warranty implied by the UCC

in the event the contract is silent; yet so far as we are aware no state disregards warranties furnished with consumer products. Drugs come with a list of ingredients on the outside and an elaborate package insert on the inside. The package insert describes drug interactions, contraindications, and other vital information - but, if Zeidenberg is right, the purchaser need not read the package insert, because it is not part of the contract.

[11] Next consider the software industry itself. Only a minority of sales take place over the counter, where there are boxes to peruse. A customer pay place an order by phone in response to a line item in a catalog or a review in a magazine. Much software is ordered over the Internet by purchasers who have never seen a box. Increasingly software arrives by wire. There is no box; there is only a stream of electrons, a collection of information that includes data, an application program, instructions, many limitations ("MegaPixel 3.14159 cannot be used with Byte-Pusher 2.718"), and the terms of sale. The user purchases a serial number, which activates the software's features. On Zeidenberg's arguments, these unboxed sales are unfettered by terms - so the seller has made a broad warranty and must pay consequential damages for any shortfalls in performance, two "promises" that if taken seriously would drive prices through the ceiling or return transactions to the horse-and-buggy age.

[12] According to the district court, the UCC does not countenance the sequence of money now, terms later. (Wisconsin's version of the UCC does not differ from the Official Version in any material respect, so we use the regular numbering system. Wis. Stat. sec. 402.201 corresponds to UCC sec. 2-201, and other citations are easy to derive.) One of the court's reasons - that by proposing as part of the draft Article 2B a new UCC sec. 2-2203 that would explicitly validate standard-form user licenses, the American Law Institute and the National Conference of Commissioners on Uniform Laws have conceded the invalidity of shrinkwrap licenses under current law, see 908 F. Supp. at 655-66 - depends on a faulty inference. To propose a change in a law's *text* is not necessarily to propose a change in the law's *effect*. New words may be designed to fortify the current rule with a more precise text that curtails uncertainty. To judge by the flux of law review articles discussing shrinkwrap licenses, uncertainty is much in need of reduction - although businesses seem to feel less uncertainty than do scholars, for only three cases (other than ours) touch on the subject, and none directly addresses it. See *Step-Saver Data Systems, Inc. v. Wyse Technology*, 939 F.2d 91 (3d Cir. 1991); *Vault Corp. v. Quaid Software Ltd.*, 847 F.2d 255, 268-70 (5th Cir. 1988); *Arizona Retail Systems, Inc. v. Software Link, Inc.*, 831 F. Supp. 759 (D. Ariz. 1993). As their titles suggest, these are not consumer transactions. *Step-Saver* is a battle-of-the-forms case, in which the parties exchange incompatible forms and a court must decide which prevails. See *Northrop Corp. v. Litronic Industries*, 29 F.3d 1173 (7th Cir. 1994) (Illinois law); Douglas G. Baird & Robert Weisberg, *Rules, Standards, and the Battle of the Forms: A Reassessment of sec. 2-207*, 68 Va. L. Rev. 1217, 1227-31 (1982). Our case has only one form; UCC sec. 2-207 is irrelevant. *Vault* holds that Louisiana's special shrinkwrap-license statute is preempted by federal law, a question to which we return. And *Arizona Retail Systems* did not reach the question, because the court found that the buyer knew the terms of the license before purchasing the software.

[13] What then does the current version of the UCC have to say? We think that the place to start is sec. 2-204(1): "A contract for sale of goods may be made in any manner sufficient to show agreement, including conduct by both parties which recognizes the existence of such a contract." A vendor, as master of the offer, may invite acceptance by conduct, and may propose limitations on the kind of conduct that constitutes acceptance. A buyer may accept by performing the acts the vendor proposes to treat as acceptance. And that is what happened. ProCD proposed a contract that a buyer would accept by *using* the software after having an opportunity to read the license at leisure. This Zeidenberg did. He had no choice, because the software splashed the license on the screen and would

not let him proceed without indicating acceptance. So although the district judge was right to say that a contract can be, and often is, formed simply by paying the price and walking out of the store, the UCC permits contracts to be formed in other ways. ProCD proposed such a different way, and without protest Zeidenberg agreed. Ours is not a case in which a consumer opens a package to find an insert saying "you owe us an extra \$10,000" and the seller files suit to collect. Any buyer finding such a demand can prevent formation of the contract by returning the package, as can any consumer who concludes that the terms of the license make the software worth less than the purchase price. Nothing in the UCC requires a seller to maximize the buyer's net gains.

[14] Section 2-606, which defines "acceptance of goods", reinforces this understanding. A buyer accepts goods under sec. 2-606(1)(b) when, after an opportunity to inspect, he fails to make an effective rejection under sec. 2-602(1). ProCD extended an opportunity to reject if a buyer should find the license terms unsatisfactory; Zeidenberg inspected the package, tried out the software, learned of the license, and did not reject the goods. We refer to sec. 2-606 only to show that the opportunity to return goods can be important; acceptance of an offer differs from acceptance of goods after delivery, see *Gillen v. Atalanta Systems, Inc.*, 997 F.2d 280, 284 n.1 (7th Cir. 1993); but the UCC consistently permits the parties to structure their relations so that the buyer has a chance to make a final decision after a detailed review.

[15] Some portions of the UCC impose additional requirements on the way parties agree on terms. A disclaimer of the implied warranty of merchantability must be "conspicuous." UCC sec. 2-316(2), incorporating UCC sec. 1-201(10). Promises to make firm offers, or to negate oral modifications, must be "separately signed." UCC secs. 2-205, 2-209(2). These special provisos reinforce the impression that, so far as the UCC is concerned, other terms may be as inconspicuous as the forum-selection clause on the back of the cruise ship ticket in *Carnival Lines*. Zeidenberg has not located any Wisconsin case - for that matter, any case in any state - holding that under the UCC the ordinary terms found in shrinkwrap licenses require any special prominence, or otherwise are to be undercut rather than enforced. In the end, the terms of the license are conceptually identical to the contents of the package. Just as no court would dream of saying that SelectPhone (trademark) must contain 3,100 phone books rather than 3,000, or must have data no more than 30 days old, or must sell for \$100 rather than \$150 - although any of these changes would be welcomed by the customer, if all other things were held constant - so, we believe, Wisconsin would not let the buyer pick and choose among terms. Terms of use are no less a part of "the product" than are the size of the database and the speed with which the software compiles listings. Competition among vendors, not judicial revision of a package's contents, is how consumers are protected in a market economy. *Digital Equipment Corp. v. Uniq Digital Technologies, Inc.*, 73 F.3d 756 (7th Cir. 1996). ProCD has rivals, which may elect to compete by offering superior software, monthly updates, improved terms of use, lower price, or a better compromise among these elements. As we stressed above, adjusting terms in buyers' favor might help Matthew Zeidenberg today (he already has the software) but would lead to a response, such as a higher price, that might make consumers as a whole worse off.

III.

[16] The district court held that, even if Wisconsin treats shrinkwrap licenses as contracts, sec. 301(a) of the Copyright Act, 17 U.S.C. sec. 301(a), prevents their enforcement. 908 F. Supp. at 656-59. The relevant part of sec. 301(a) preempts any "legal or equitable rights [under state law] that are equivalent to any of the exclusive rights within the general scope of copyright as specified by section 106 in works of authorship that are fixed in a tangible medium of expression and come within the subject matter of copyright as specified by sections 102 and 103". ProCD's software and data are

"fixed in a tangible medium of expression", and the district judge held that they are "within the subject matter of copyright". The latter conclusion is plainly right for the copyrighted application program, and the judge thought that the data likewise are "within the subject matter of copyright" even if, after *Feist*, they are not sufficiently original to be copyrighted. 908 F. Supp. at 656-57. *Baltimore Orioles, Inc. v. Major League Baseball Players Ass'n*, 805 F.2d 663, 676 (7th Cir. 1986), supports that conclusion, with which commentators agree. E.g., Paul Goldstein, III *Copyright* sec. 15.2.3 (2d ed. 1996); Melville B. Nimmer & David Nimmer, *Nimmer on Copyright* sec. 101[B] (1995); William F. Patry, II *Copyright Law and Practice* 1108-09 (1994). One function of sec. 301(a) is to prevent states from giving special protection to works of authorship that Congress has decided should be in the public domain, which it can accomplish only if "subject matter of copyright" includes all works of a type covered by sections 102 and 103, even if federal law does not afford protection to them. Cf. *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, [489 U.S. 141](#) (1989) (same principle under patent laws).

[17] But are rights created by contract "equivalent to any of the exclusive rights within the general scope of copyright"? Three courts of appeals have answered "no." *National Car Rental Systems, Inc. v. Computer Associates International, Inc.*, 991 F.2d 426, 433 (8th Cir. 1993); *Taquino v. Teledyne Monarch Rubber*, 893 F.2d 1488, 1501 (5th Cir. 1990); *Acorn Structures, Inc. v. Swantz*, 846 F.2d 923, 926 (4th Cir. 1988). The district court disagreed with these decisions, 908 F. Supp. at 658, but we think them sound. Rights "equivalent to any of the exclusive rights within the general scope of copyright" are rights established by law - rights that restrict the options of persons who are strangers to the author. Copyright law forbids duplication, public performance, and so on, unless the person wishing to copy or perform the work gets permission; silence means a ban on copying. A copyright is a right against the world. Contracts, by contrast, generally affect only their parties; strangers may do as they please, so contracts do not create "exclusive rights." Someone who found a copy of SelectPhone (trademark) on the street would not be affected by the shrinkwrap license - though the federal copyright laws of their own force would limit the finder's ability to copy or transmit the application program.

[18] Think for a moment about trade secrets. One common trade secret is a customer list. After *Feist*, a simple alphabetical list of a firm's customers, with address and telephone numbers, could not be protected by copyright. Yet *Kewanee Oil Co. v. Bicron Corp.*, [416 U.S. 470](#) (1974), holds that contracts about trade secrets may be enforced - precisely because they do not affect strangers' ability to discover and use the information independently. If the amendment of sec. 301(a) in 1976 overruled *Kewanee* and abolished consensual protection of those trade secrets that cannot be copyrighted, no one has noticed - though abolition is a logical consequence of the district court's approach. Think, too, about everyday transactions in intellectual property. A customer visits a video store and rents a copy of *Night of the Lepus*. The customer's contract with the store limits use of the tape to home viewing and requires its return in two days. May the customer keep the tape, on the ground that sec. 301(a) makes the promise unenforceable?

[19] A law student uses the LEXIS database, containing public-domain documents, under a contract limiting the results to educational endeavors; may the student resell his access to this database to a law firm from which LEXIS seeks to collect a much higher hourly rate? Suppose ProCD hires a firm to scour the nation for telephone directories, promising to pay \$100 for each that ProCD does not already have. The firm locates 100 new directories, which it sends to ProCD with an invoice for \$10,000. ProCD incorporates the directories into its database; does it have to pay the bill? Surely yes; *Aronson v. Quick Point Pencil Co.*, [440 U.S. 257](#) (1979), holds that promises to pay for intellectual property may be enforced even though federal law (in *Aronson*, the patent law) offers no protection

against third-party uses of that property. See also *Kennedy v. Wright*, 851 F.2d 963 (7th Cir. 1988). But these illustrations are what our case is about. ProCD offers software and data for two prices: one for personal use, a higher price for commercial use. Zeidenberg wants to use the data without paying the seller's price; if the law student and Quick Point Pencil Co. could not do that, neither can Zeidenberg.

[20] Although Congress possesses power to preempt even the enforcement of contracts about intellectual property - or railroads, on which see *Norfolk & Western Ry. v. Train Dispatchers*, [499 U.S. 117](#) (1991) - courts usually read preemption clauses to leave private contracts unaffected. *American Airlines, Inc. v. Wolens*, 115 S.Ct. 817 (1995), provides a nice illustration. A federal statute preempts any state "law, rule, regulation, standard, or other provision . . . relating to rates, routes, or services of any air carrier." 49 U.S.C. App. sec. 1305(a)(1). Does such a law preempt the law of contracts - so that, for example, an air carrier need not honor a quoted price (or a contract to reduce the price by the value of frequent flyer miles)? The Court allowed that it is possible to read the statute that broadly but thought such an interpretation would make little sense. Terms and conditions offered by contract reflect private ordering, essential to the efficient functioning of markets. 115 S.Ct. at 824-25. Although some principles that carry the name of contract law are designed to defeat rather than implement consensual transactions, *id.* at 826 n.8, the rules that respect private choice are not preempted by a clause such as sec. 1305(a)(1). Section 301(a) plays a role similar to sec. 1301(a)(1): it prevents states from substituting their own regulatory systems for those of the national government. Just as sec. 301(a) does not itself interfere with private transactions in intellectual property, so it does not prevent states from respecting those transactions. Like the Supreme Court in *Wolens*, we think it prudent to refrain from adopting a rule that anything with the label "contract" is necessarily outside the preemption clause: the variations and possibilities are too numerous to foresee. *National Car Rental* likewise recognizes the possibility that some applications of the law of contract could interfere with the attainment of national objectives and therefore come within the domain of sec. 301(a). But general enforcement of shrinkwrap licenses of the kind before us does not create such interference.

[21] *Aronson* emphasized that enforcement of the contract between Aronson and Quick Point Pencil Company would not withdraw any information from the public domain. That is equally true of the contract between ProCD and Zeidenberg. Everyone remains free to copy and disseminate all 3,000 telephone books that have been incorporated into ProCD's database. Anyone can add sic codes and zip codes. ProCD's rivals have done so. Enforcement of the shrinkwrap license may even make information more readily available, by reducing the price ProCD charges to consumer buyers. To the extent licenses facilitate distribution of object code while concealing the source code (the point of a clause forbidding disassembly), they serve the same procompetitive functions as does the law of trade secrets. *Rockwell Graphic Systems, Inc. v. DEV Industries, Inc.*, 925 F.2d 174, 180 (7th Cir. 1991). Licenses may have other benefits for consumers: many licenses permit users to make extra copies, to use the software on multiple computers, even to incorporate the software into the user's products. But whether a particular license is generous or restrictive, a simple two-party contract is not "equivalent to any of the exclusive rights within the general scope of copyright" and therefore may be enforced.

[22] REVERSED AND REMANDED
