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## What's in a Standard Form Contract? An Empirical Analysis of Software License Agreements

*Florenca Marotta-Wurgler\**

The vast majority of commercial transactions are governed by standard form contracts, but little is known about their actual content and the determinants of that content. This article provides a comprehensive empirical analysis of an important class of modern standard form contracts—software license agreements. In a sample of 647 licenses for software from various markets, I document the prevalence of terms relating to license acceptance, license scope, limitations on transfer, warranties, limitations on liability, maintenance and support, and conflict resolution. I find that almost all licenses display a net bias, relative to relevant default rules, in favor of the software company (the contract writer). I also investigate firm- and buyer-type determinants of the net bias. Larger and (controlling for size) younger firms offer more one-sided terms. Firms offer similar terms to both business buyers and members of the general public. In addition to providing new insight about the nature of standard form contracts, the results may inform efforts to draft new default rules to govern software transactions.

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## I. INTRODUCTION

It has been estimated that 99 percent of all commercial contracts are standard form contracts.<sup>1</sup> Everyday examples include the warranties that accompany electronic appliances, the details of cell phone service contracts, and the fine print on concert tickets. Although consumers are able to determine the quantity and perhaps the delivery method of goods they purchase, they are often left with little choice but to accept the many important secondary terms presented in nonnegotiable boilerplate. Courts generally enforce these standard form contracts as long as the contracts are not procedurally or substantively “unconscionable.”<sup>2</sup>

In light of the enormous practical importance of standard form contracting, one might expect that standard form contracting practices are well understood. In fact, there has been very little systematic empirical work analyzing the content of form contracts. The few relevant studies involve small samples and, while path breaking in their analysis, are now rather dated. They include those of Bogert and Fink, who examine warranties of small samples of various goods, and that of Priest, who studies home appliance warranties.<sup>3</sup>

To shed new light on standard form contracting practices in general, and a particular class of standard form contracts of great contemporary significance, I examine the end-user license agreements (EULAs) associated with typical “prepackaged” (i.e., noncustomized) software products. These contracts present a rich set of standard terms that are important to understand in their own right, given that sales of all types of software exceeds \$100 billion per year.<sup>4</sup> In addition, a careful study of software license agreements

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<sup>1</sup>W. David Slawson, *Standard Form Contracts and Democratic Control of Law Making Power*, 84 *Harv. L. Rev.* 529 (1971).

<sup>2</sup>See UCC § 2-302.

<sup>3</sup>George G. Bogert & E. E. Fink, *Business Practice Regarding Warranties in the Sale of Goods*, 25 *Ill. L. Rev.* 400 (1930); George L. Priest, *A Theory of the Consumer Product Warranty*, 90 *Yale L. J.* 1297 (1981) [hereinafter Priest, *A Theory of the Consumer Product Warranty*]. See also William C. Whitford, *Law and the Consumer Transaction: A Case Study of the Automobile Warranty*, *Wis. L. Rev.* 1006 (1968) at 1006; Jennifer L. Gerner & W. Keith Bryant, *Appliance Warranties as a Market Signal?* 15 *J. Consumer Aff.* 75 (1981); Marcel Kahan & Michael Klausner, *Standardization and Innovation in Corporate Contracting (or “The Economics of Boilerplate”)*, 83 *Va. L. Rev.* 713 (1997).

<sup>4</sup>Software and Information Industry Association, *Software Industry Profile*, June 2004: *Packaged Software* ([http://www.siia.net/software/pubs/profile\\_0604.pdf](http://www.siia.net/software/pubs/profile_0604.pdf)).

should help focus recent debates over the desirability of the Uniform Computer Information Transactions Act (UCITA), a contract law statute developed by the National Conference of Commissioners on Uniform State Laws in an effort to create a uniform and cohesive body of law for contracts relating to computer information such as software. UCITA generated heated debate.<sup>5</sup> It was enacted in Maryland and Virginia,<sup>6</sup> and while efforts to encourage other states to adopt it were suspended in 2003, those who oppose it continue to be concerned that courts are using this model act as a reference for deciding cases.

My analysis is based on a hand-collected sample of 647 EULAs of standard “prepackaged” software products. The contracts in the sample include examples from 598 different software companies, including almost all well-known software publishers and hundreds of smaller firms. The software products whose EULAs I gather span several dimensions of the software industry. They are drawn from 114 distinct markets, from anti-virus to voice recognition to spreadsheet, and include products targeted toward the general public as well as toward large corporate users.

To characterize the qualitative content of these EULAs in a quantitative way, I construct a simple index that can be roughly thought of as measuring overall “buyer friendliness.” The index is based on 23 important and common terms that allocate rights and risks between buyers and sellers of software. The particular terms that I track are identified as important in several independent industry and trade references and textbooks. The terms address acceptance of the license, scope of the license, restrictions on transfer, warranties and disclaimers of warranties, limitations on liability, maintenance and support services, and conflict resolution.

I measure the net “bias” of each contract relative to the default rules provided by Article 2 of the Uniform Commercial Code (UCC) (as well as

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<sup>5</sup>For views in support of UCITA, see, e.g., Richard Epstein, In Defence of UCITA, *Financial Times* (Apr. 2, 2003) (<http://neews.ft.com/cms/s/2f8a79ca-d1b5-11d8-83e4-0003ba5a9905.html>); also see Clayton Gillette, Letter in Support of UCITA to NCCUSL Standby Committee on UCITA (Jan. 21, 2003) (<http://www.nccusl.org/nccusl/ucita/ucita/GilletteEndorse.pdf>). For views opposing UCITA, see Lawrence Lessig, Sign it and Weep, *The Standard* (Nov. 20, 1998) (<http://www.lessig.org/content/standard/0,1902,2583,00.html>); and Jean Braucher, The Failed Promise of the UCITA Mass-Market Concept and its Lessons for Policing of Standard Form Contracts, 77 *J. Small & Emerging Bus. L.* 393 (2003).

<sup>6</sup>See Va. Code Ann. 59.1-501.1 to 59.1-509.2 (Michie 2001); Md. Code Ann. Comm. Law 22-101 to 22-816 (Supp. 2002).

the relevant provisions supplemented by Article 1, such as choice of law and forum rules). Specifically, for each term that is more pro-seller than the default rules, I assign a negative one point score, and for each term that is more pro-buyer, I assign a positive one point score. I assign a score of zero if the contract is silent in regard to the specified term, or if the specified term matches the default rule. I then construct an overall bias index for a given EULA as the sum of these 23 scores. The more positive this sum, the more pro-buyer the contract in general. Although very crude, this approach captures the overall tone of the EULA in a way that allows for empirical analysis and, importantly, measures bias against an objective benchmark, the default rules of the UCC. I also relax the assumption that all terms matter equally by studying seven subindexes that isolate categories of related terms.<sup>7</sup>

The results present a rich description of the content of EULAs. I document the average bias of each of the 23 terms that I follow, as well as the average bias of categories of terms and the license agreement as a whole. A clear conclusion is that EULAs are almost without exception tilted toward the seller, relative to the relevant default rules—some sharply so.

There is a great deal of variation in the sample, however. On average, larger companies and, controlling for size, younger companies present significantly more one-sided (i.e., pro-seller) contracts. Perhaps contrary to intuition, EULAs associated with products targeted toward the general public are not significantly more pro-seller than the EULAs associated with business-oriented products. Furthermore, since the sample includes 98 EULAs from 49 companies that sell both consumer and business versions of the same product, I am able to cleanly test, and reject, the hypothesis that sellers actively discriminate between buyer types through the terms they offer to them.

Overall, the analysis provides a number of new facts about modern standard form contracting. In terms of practical implications, a systematic analysis of EULA terms may, by illustrating the actual distribution of EULA terms, assist judges, legislators, and practitioners to better determine what is and is not unusual, and thus better identify suspicious provisions. In particular, the study may shed light on whether the current approach of relying on Article 2 to govern the enforcement of EULAs is desirable, and may help

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<sup>7</sup>Similar index methodologies can be found in, e.g., Paul A. Gompers, Joy L. Ishii & Andrew Metrick, *Corporate Governance and Equity Prices*, *Q.J. of Econ.* 118(1) (2003), and Rafael La Porta R, Florencio Lopez-de-Silanes, Andrei Shleifer & Robert Vishny, *Legal Determinants of External Finance*, *J. of Fin.* 52(3) (1997).

focus ongoing debates on the rules that should comprise a uniform body of law for transactions in information goods.

The article proceeds as follows. Section II describes the sample of software license agreements. Section III provides a detailed analysis of the legal significance and the method I use to measure bias of important terms. Section IV documents the average bias in license agreements and examines cross-sectional product and company-level determinants of the bias. Section V concludes.

## II. SAMPLE OF SOFTWARE LICENSE AGREEMENTS

The database of EULAs is based on two sets of “prepackaged” (i.e., noncustom) software products. The first set includes a representative product, or at most two products, from software publishers that sell their products online through their corporate website.<sup>8</sup> I identified a sample of such companies using the *Software Industry Directory 2005*, a comprehensive database of more than 7,000 software companies. A few thousand of these firms sold custom software, for example, they were systems integrators, or were merely resellers, not selling their own software products. For the remaining firms, each company’s website was checked to determine whether its products were sold through its website. If this was the case, I attempted to obtain a EULA by searching the company’s website or by requesting it directly. When a “flagship” product was apparent, I gathered its EULA; otherwise, I chose a product at random. I attempted to identify and obtain the EULA for a company’s flagship product (i.e., the product or products the company seemed to predominantly emphasize on its website and/or the product for which the company is best known) because it is the one most likely to matter most to both buyers and the seller.<sup>9</sup> For most of the companies in the sample, selecting a flagship product was an easy and straightforward task. For the remaining companies, I selected a product in a fairly informal way, selecting what seemed to be a highly marketed product line or, at least, not less

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<sup>8</sup>This selection criterion is tailored to the analysis in Florencia Marotta-Wurgler, Are “Pay Now, Terms Later” Contracts Worse for Buyers? Evidence from Software License Agreements, NYU Law and Economics Working Paper No. 05-10 (2005).

<sup>9</sup>This type of product thus would be the one most likely to be governed by a contract that has been recently revised, carefully drafted, and most likely to be read by buyers.

marketed than any other product. This process led to 515 EULAs from 468 companies; for 49 companies, I gathered the license agreement for a product oriented to the general public or home office user as well as that for a similar product aimed at a business-oriented user.

The second set of EULAs come from products from software companies that sell at least some of their products through Amazon.com and are not already represented in the first set of products—in other words, the companies in this set sell software through Amazon.com, but not necessarily through their own corporate website. Here, to identify companies' flagship products, I selected those with the highest Amazon.com "sales ranks" relative to the sales ranks of the company's other products. I then obtained the EULAs for these products.<sup>10</sup> This led to 132 additional EULAs from 130 additional companies (for two companies it was convenient to gather both consumer- and business-product licenses).

The total sample contains 647 EULAs from 598 companies. Based on the above description of the sample-collection process, the reader might be concerned that because EULAs were gathered for firms that sell on Amazon.com or through their own website, the sample is subject to some type of selection bias. This is not a major concern. Virtually all prepackaged software companies of any significance sell their products through their website or Amazon.com and hence are represented in my sample. The sample is a reasonable cross-section of EULAs of firms selling over the Internet and compares favorably in size with samples of standard form contracts that have been studied in the prior law and economics literature.

For an EULA to be included in the final sample, I also require the availability of certain company and product data. I collected basic company characteristics such as revenue and age, defined as 2005 minus the year of incorporation or founding, with a maximum age of 25 (since any pre-1980 operations were unlikely to have emphasized software publishing). I also gathered data on whether the company is private or public. I obtained most of these data from *Hoover's Company Directory*. Table 1 summarizes the characteristics of the companies with EULAs included in my sample. Mean sales are \$499 million, but range from \$50,000 to \$87.5 billion. Median sales are \$2.2 million. The average company age is 15 years, but the sample includes both startups and long-established firms. Publicly traded firms make up 16 percent of the sample.

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<sup>10</sup>Amazon.com generally sells the most popular products of the companies listed, so the products entering this part of the sample are likely to be among the company's most important products.

Table 1: Software Company Summary Statistics

	Mean (SD)	Minimum	Median	Maximum
Revenue (\$)	499,000,000 (4,700,000,000)	1,000	2,200,000	87,500,000,000
Age (years)	15 (6.57)	1	14	25
Public company	0.16 (0.37)	0	0	1

NOTE: Means and standard deviations are based on 647 contracts from 598 software companies. Firm data, including total revenue, public versus private status, and years since incorporation, were obtained primarily from Hoover’s company directory and the 2005 *Software Industry Directory* database. Age refers to the number of years since incorporation, as measured as of the year 2005. The maximum age is set to 25, since firm operations before 1980 were unlikely to emphasize software publishing.

Several product characteristics are important to track. An obvious one is the product’s price. Others concern the nature of the license. Most licenses in the sample are of unlimited duration and for a single user. Because a multi-user license may increase price and come with different terms, I record whether the license allows for multiple users. Another characteristic I record is whether the license is “developer” or “standard.” Developer licenses allow the buyer to use the software to develop derivative products, and hence are commonly found with products that aid programmers in creating new software.

I also record basic aspects of the function of the software. I subjectively determine whether the product is targeted to a consumer (or home business) user or a large business user. This allows for a test of whether companies impose poorer standard terms on less sophisticated buyers.<sup>11</sup> I also classified each product into one of 146 “markets” used by Amazon.com to categorize software. For products obtained from Amazon.com, this classification is provided; for products obtained from the *Software Industry Directory 2005* sample, I matched the product to the market manually.

Table 2 reports some key product summary statistics and also illustrates the breadth of software types in the sample. Of the 146 Amazon.com markets

<sup>11</sup>For example, a product entitled Cyber Sentinel 3.0 Home Edition, designed to prevent children from accessing adult sites from a home computer, is categorized as “consumer” software, while software products targeted to large firms, such as Client Management Services v1.30, are categorized as “business” software. For a detailed explanation of this selection process, see note 52.



Table 2: Software Product Summary Statistics

Market	All		Consumer		Business	
	N EULAs	Mean Price (\$)	N EULAs	Mean Price (\$)	N EULAs	Mean Price (\$)
Business & Office > Business Accounting > Accounting	13	1,302	4	144	9	1,816
Business & Office > Business Accounting > Check Printing	2	257	1	20	1	495
Business & Office > Business Accounting > Payroll	3	304	0	.	3	304
Business & Office > Business & Office Mgmt. Software	15	1,248	4	91	11	1,669
Business & Office > Communication > E-mail > E-mail Clients	5	237	2	57	3	356
Business & Office > Communication > E-mail > E-mail Servers	1	350	0	.	1	350
Business & Office > Communication > E-mail > Security & Filtering	5	548	3	33	2	1,320
Business & Office > Communication > Fax	3	253	1	50	2	355
Business & Office > Communication > Remote Access	4	194	2	174	2	214
Business & Office > Communication > Terminal Emulations > Linux & Unix	0	.	0	.	0	.
Business & Office > Communication > Terminal Emulations > Macintosh	0	.	0	.	0	.
Business & Office > Communication > Terminal Emulations > Windows	6	702	2	120	4	993
Business & Office > Database	34	879	8	344	26	1,044
Business & Office > Document Mgmt. > Document Tracking & Inventory	8	497	2	120	6	622
Business & Office > Document Mgmt. > Scanning & OCR	4	162	2	75	2	249
Business & Office > Office Suites	4	714	3	119	1	2,500
Business & Office > Presentation > General	5	271	3	171	2	422
Business & Office > Presentation > Flowcharts	8	1,321	3	251	5	1,963
Business & Office > Presentation > Marketing	0	.	0	.	0	.
Business & Office > Project Mgmt.	18	1,016	2	297	16	1,105
Business & Office > Reports & Forms	15	499	6	300	9	631
Business & Office > Schedule & Contact Mgmt. > Calendars	5	567	1	225	4	652
Business & Office > Schedule & Contact Mgmt. > Organizers & Address Books	12	211	7	144	5	306
Business & Office > Schedule & Contact Mgmt. > Phone Books on Disc	1	40	1	40	0	.
Business & Office > Spreadsheet	16	571	5	248	11	718
Business & Office > Training & Tutorials	4	195	3	144	1	350
Business & Office > Word Processing	7	276	4	62	3	561
Education & Reference > Arts & Culture	4	38	4	38	0	.
Education & Reference > Encyclopedias & Dictionaries	2	50	2	50	0	.
Education & Reference > Foreign Languages	5	193	5	193	0	.

Education & Reference > Geography	1	499	1	499	0	0	.
Education & Reference > History	0	.	0	.	0	0	.
Education & Reference > Mapping	12	2,543	6	86	6	6	5,000
Education & Reference > Religious Software	12	151	8	73	4	4	307
Education & Reference > Science	16	3,117	7	141	9	9	5,431
Education & Reference > Script & Screenwriting	2	219	1	239	1	1	200
Education & Reference > Secondary Education > English & Grammar	6	192	3	63	3	3	321
Education & Reference > Secondary Education > Math	3	100	2	70	1	1	159
Education & Reference > Secondary Education > Science	0	.	0	.	0	0	.
Education & Reference > Test Preparation	8	111	6	69	2	2	239
Education & Reference > Typing	0	.	0	.	0	0	.
Education & Reference > Writing & Literature	3	118	2	77	1	1	200
Graphics > 3-D	15	1,975	2	925	13	13	2,137
Graphics > Animation	3	248	2	247	1	1	250
Graphics > CAD	11	1,802	3	242	8	8	2,386
Graphics > Home Publishing > Calendars	1	65	1	65	0	0	.
Graphics > Home Publishing > Clip Art	2	25	2	25	0	0	.
Graphics > Home Publishing > Fonts	2	3,207	0	.	2	2	3,207
Graphics > Home Publishing > Greeting Cards	0	.	0	.	0	0	.
Graphics > Home Publishing > Mailing Labels	3	365	2	50	1	1	995
Graphics > Illustration	4	89	3	86	1	1	99
Graphics > Image Capture	7	254	5	63	2	2	732
Graphics > Photo Editing	10	659	6	52	4	4	1,569
Home & Hobbies > Cooking & Health	6	36	6	36	0	0	.
Home & Hobbies > Fashion	2	54	1	99	1	1	10
Home & Hobbies > Gardening & Landscape	2	99	2	99	0	0	.
Home & Hobbies > Genealogy	4	47	4	47	0	0	.
Home & Hobbies > Hobbies	6	132	4	132	2	2	132
Home & Hobbies > Home Design	3	120	1	250	2	2	54
Home & Hobbies > Legal	2	285	1	149	1	1	420
Home & Hobbies > Movies & Television	2	119	2	119	0	0	.
Linux > Business & Office > Database	0	.	0	.	0	0	.
Linux > Business & Office > Word Processing	1	40	1	40	0	0	.
Linux > Communication > Terminal Emulations	0	.	0	.	0	0	.

Table 2: Continued

Market	All		Consumer		Business	
	N EULAs	Mean Price (\$)	N EULAs	Mean Price (\$)	N EULAs	Mean Price (\$)
Linux > Graphics > 3-D & Animation	0	.	0	.	0	.
Linux > Graphics > Home Publishing	0	.	0	.	0	.
Linux > Networking > Firewalls	0	.	0	.	0	.
Linux > Networking > Local Area Network	0	.	0	.	0	.
Linux > Networking > Virtual Private Network	0	.	0	.	0	.
Linux > Operating Systems & Utilities > Backup	3	153	1	60	2	199
Linux > Operating Systems & Utilities > Virus Protection	0	.	0	.	0	.
Linux > Programming > Database	0	.	0	.	0	.
Linux > Programming > Development Utilities	2	272	1	50	1	495
Linux > Programming > Programming Languages	0	.	0	.	0	.
Linux > Web Development > Web Effects	1	499	0	.	1	499
Linux > Web Development > Web Page Editors	0	.	0	.	0	.
Linux > Web Development > Web Site Hosting	0	.	0	.	0	.
Networking > Directory Servers	11	666	4	223	7	919
Networking > File & Print Servers	3	198	1	396	2	98
Networking > Firewalls	2	332	1	395	1	270
Networking > Local Area Networks	3	126	1	20	2	179
Networking > Network	6	367	0	.	6	367
Networking > Network & Enterprise Mgmt.	13	3,919	1	29	12	4,243
Networking > Security	9	580	3	70	6	835
Networking > TCP-IP	3	3,215	0	.	3	3,215
Networking > Telephony	4	85	3	93	1	60
Networking > Virtual Private Networks	5	1,170	0	.	5	1,170
Operating Systems > BeOS	0	.	0	.	0	.
Operating Systems > DOS	0	.	0	.	0	.
Operating Systems > Linux & Unix	5	493	3	73	2	1,124
Operating Systems > Macintosh	0	.	0	.	0	.
Operating Systems > Microsoft Windows	0	.	0	.	0	.
Personal Finance > Investment Tools	0	.	0	.	0	.
Personal Finance > Money Mgmt.	4	337	4	337	0	.

Personal Finance > Tax Preparation	3	32	2	22	1	50
Programming > Database > DB2	0	.	0	.	0	.
Programming > Database > Filemaker	0	.	0	.	0	.
Programming > Database > Oracle	1	15,000	0	.	1	15,000
Programming > Database > SQL	2	820	0	.	2	820
Programming > Development Utilities > Code Testing	12	659	1	139	11	706
Programming > Programming Languages > C & C++	14	677	4	213	10	862
Programming > Programming Languages > COBOL	0	.	0	.	0	.
Programming > Programming Languages > FORTRAN	4	797	1	795	3	798
Programming > Programming Languages > Java	6	1,148	1	99	5	1,358
Programming > Programming Languages > C++	2	349	0	.	2	349
Programming > Programming Languages > Visual Basic	13	157	8	62	5	309
Utilities > Backup	5	141	2	84	3	178
Utilities > Cross Platform	1	95	0	.	1	95
Utilities > File Compression & Decompression	4	101	4	101	0	.
Utilities > File Conversion	1	28	1	28	0	.
Utilities > Memory Mgmt.	1	28	1	28	0	.
Utilities > Partitions	5	620	2	67	3	989
Utilities > PC Maintenance	14	591	5	68	9	882
Utilities > Screen Savers	4	287	2	25	2	549
Utilities > Virus Protection	18	161	11	40	7	351
Utilities > Voice Recognition	3	382	1	200	2	473
Video & Music > CD Burning & Labeling > CD Burning	3	70	3	70	0	.
Video & Music > CD Burning & Labeling > CD Labeling	2	29	2	29	0	.
Video & Music > Digital Audio > MIDI	1	70	1	70	0	.
Video & Music > Digital Audio > Music Creation & Sequencing	5	265	3	99	2	514
Video & Music > Digital Audio > Sound Editing	0	.	0	.	0	.
Video & Music > Digital Audio > Sound Libraries	1	695	1	695	0	.
Video & Music > Digital Video > Compositing & Effects	0	.	0	.	0	.
Video & Music > Digital Video > Video Editing	5	377	4	371	1	399
Video & Music > DVD Viewing & Authoring	6	59	5	61	1	50
Video & Music > Encoding	4	105	4	105	0	.
Video & Music > Instrument Instruction	7	60	7	60	0	.
Video & Music > MP3 Software	1	20	1	20	0	.
Video & Music > Music Appreciation	3	60	3	60	0	.

Table 2: Continued

Market	All		Consumer		Business	
	N EULAs	Mean Price (\$)	N EULAs	Mean Price (\$)	N EULAs	Mean Price (\$)
Video & Music > Music Notation	4	163	3	152	1	199
Web Development > E-Commerce	12	685	5	202	7	1,030
Web Development > Internet Utilities > Electronic Publishing	1	599	0	.	1	599
Web Development > Internet Utilities > Instant Messaging	2	240	0	.	2	240
Web Development > Internet Utilities > Internet Phone	4	137	2	60	2	215
Web Development > Internet Utilities > Security & Filtering	7	237	4	46	3	491
Web Development > Internet Utilities > Shared Internet	0	.	0	.	0	.
Web Development > Internet Utilities > Streaming Video	5	204	1	100	4	230
Web Development > Professional Development	19	929	4	632	15	1,003
Web Development > Web Browsers	2	1,012	1	30	1	1,995
Web Development > Web Effects > Animation	0	.	0	.	0	.
Web Development > Web Effects > Objects	1	399	0	.	1	399
Web Development > Web Page Editors > Intranet	1	1,430	0	.	1	1,430
Web Development > Web Page Editors > Tutorials	1	249	1	249	0	.
Web Development > Web Page Editors > WYSIWYG	3	714	2	574	1	995
Web Development > Web Site Hosting > Application Servers	2	650	0	.	2	650
Web Development > Web Site Hosting > Web Servers	0	.	0	.	0	.
Web Development > Web Site Hosting > Web-Site Analysis	1	699	0	.	1	699
All Markets	647	763	289	143	358	1,263

NOTE: Number of EULAs in the sample and average software prices by market and user type. Markets are based on Amazon.com software product categories. Price is the price of the product for which the EULA is obtained. Consumer products are those oriented toward the general public or small business users, while business products are those oriented toward medium-to-large business users.

(excluding children's software and games, categories for which I do not gather EULAs), 114 are represented by at least one EULA. For example, the category that Amazon.com calls the "Business & Office > Business Accounting > Accounting" market is represented by 13 EULAs. The average price of the products in this category is \$1,302. Four of the EULAs in this category are for consumer-oriented products, the average price of which is \$144, while the remaining nine EULAs are for business-oriented products, with an average price of \$1,816. Overall, the average price of the products in the sample is \$763, a result influenced by a few very expensive products. The median price is \$200 (medians are not reported in the table). Just under half the products in the sample, 45 percent, are oriented toward consumers or home businesses. The mean price of these products is \$143 (median \$60), while the mean price for products oriented toward medium to large businesses is \$1,263 (median \$499).

### III. IMPORTANT EULA TERMS: LEGAL SIGNIFICANCE AND BIAS

The next step is to analyze the content of EULAs. For each EULA in the sample, I collect data on 23 common and important standard terms that allocate rights and risks between buyers and sellers. These terms can be grouped into seven main categories. The first category, ACCEPTANCE OF LICENSE, includes terms designed to alert the buyer of his or her options should the buyer find the license or product disagreeable. The second category, SCOPE OF LICENSE, contains terms restricting the buyer's use of the software. The third, TRANSFER OF LICENSE, includes terms that limit the buyer's ability to sell or transfer the software. The fourth category is WARRANTIES AND WARRANTY DISCLAIMERS, and is comprised of terms that delineate the degree and type of warranty protection offered to buyers. The fifth category, LIMITATIONS OF LIABILITIES, contains terms specifying the extent of the seller's liabilities for different types of buyer loss arising out of use of the software. It also covers remedies, if any, for such losses. The sixth category, MAINTENANCE AND SUPPORT, takes into account whether the base price of the software includes these services. The last category, CONFLICT RESOLUTION, includes terms that restrict a buyer's choices regarding his or her decision of where to sue (forum-selection clauses), whether to have a jury trial (arbitration clauses), and how legal fees are to be allocated.

How does one measure the “bias” of a given term? I briefly summarize the approach and then proceed to details. Unlike sellers of many other mass-market products, software companies generally license rather than sell their products.<sup>12</sup> Other than the additional posttransfer restrictions sellers can impose on buyers through licensing instead of selling, the legal implications regarding enforcement of the EULA and its terms are the same as those regarding regular standard form contracts. Numerous courts have held that the sale (or licensing) of software should be interpreted as the sale of a good within the meaning of the UCC.<sup>13</sup> Consequently, when faced with a dispute over the validity of a software EULA or a particular term contained therein, courts have relied on Article 2 of the UCC (and relevant UCC Article 1 provisions) to determine its enforceability. Thus, the “bias” of a given term need not be assessed subjectively but can be based on the meaningful, objective benchmark provided by the default rules of Article 2.<sup>14</sup>

For each of the 23 terms being tracked, I assign a negative one point score if the stated term is more pro-seller than the default rules of Article 2, a positive one point score if it is more pro-buyer relative to those rules, and a zero score if the contract is silent in regard to the specified term or if the specified term matches the default rule. For example, a provision occasion-

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<sup>12</sup>Originally, copyright and patent protection did not extend to software products. To prevent unauthorized copying, software publishers relied on contract law and claimed their products as trade secrets. To be able to maintain the trade secret status, sellers then licensed the software with contractual provisions prohibiting buyers from copying or disclosing the source code of the software and requiring them to keep the information confidential. Today, sellers benefit from copyright and patent protection of their software. However, sellers still license software because this allows them to retain control over the software after they have delivered it to buyers. By restricting buyers’ rights to transfer or resell the software, sellers can avoid copyright’s “first sale” rule and price discriminate more effectively, among other advantages. See Mark A. Lemley, *Intellectual Property and Shrinkwrap Licenses*, 68 S. Cal. L. Rev. 1239 (1995).

<sup>13</sup>See, e.g., *Advent Sys. Ltd. v. Unisys Corp.*, 925 F.2d 670, 676 (3d Cir. 1991); *Step-Saver Data Sys. v. Wyse*, 939 F.2d 91 (3d Cir. 1991); *Downriver Internists v. Harris Corp.*, 929 F.2d 1147, 1150 (6th Cir. 1991).

<sup>14</sup>Many share the view that Article 2 provides poor default rules for transactions involving information goods, particularly software. This belief resulted in frustrated attempts to amend the UCC to include proposed Article 2B, a body of law for transactions in information. Subsequent efforts, such as UCITA, enacted in Maryland and Virginia, suffered a similar fate. The lack of agreement as to what should constitute the appropriate default rules for software transactions generated a legal void. This left courts struggling for appropriate gap fillers and with only Article 2 to aid them with EULA enforcement and interpretation. Given that these rules effectively guide courts in their interpretation of EULAs, I use Article 2 as the benchmark in my bias index.

ally contained in EULAs entitles buyers to receive software updates and upgrades for a specified period after purchase. Since there is no default rule in Article 2 mandating such an entitlement and because, other things being equal, a buyer would prefer an EULA that entitles him or her to receive updates to one without such an entitlement, I give the presence of this term a positive one point score in the overall index.

Once all 23 terms are scored in this manner, I add the scores to form an overall bias index. This provides a rough overall measure of the EULA's net buyer friendliness relative to the Article 2 defaults. Of course, since each of the terms is given the same weight by this process, an implicit assumption is that all terms matter equally. This might not be realistic. Buyers of certain products might not care about whether they are allowed to modify the software, but be more concerned about warranty protection; on the other hand, it is possible to imagine certain buyers having the opposite preference. Although for simplicity I focus on the overall index, I also construct and analyze subindexes for each of the seven groups of terms that I follow.<sup>15</sup>

Table 3 lists all terms and describes how each is scored in detail. In deciding on which terms to follow, I rely on four sources. The two primary sources are trade-related publications. The first is *Software Agreements Line by Line*, an industry manual by Michael Overly and James R. Kalyvas, two attorneys who specialize in software transactions.<sup>16</sup> The guide is directed to an audience of sophisticated licensees and provides taxonomy of the typical structure of software license agreements and a discussion of their most important terms (which I use to create the index). It then explains the particular purpose and pro-buyer or pro-seller bias of each particular term. The second is the Software and Information Industry Association's (SIIA) *Guide to Software Contracts*.<sup>17</sup> This is a comprehensive reference of different types of software contracts and their terms that the SIIA makes available to its

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<sup>15</sup>The structure of the index itself takes account of these relative weights, albeit indirectly, by allocating additional variation to certain subindexes. That is, although each term is given the same weight, the index includes more terms for the classes of terms that are arguably more important, as suggested by the trade references, such as warranty terms.

<sup>16</sup>Michael Overly & James P. Kalyvas, *Software Agreements Line by Line* (Aspatore, Inc. 2004).

<sup>17</sup>The Software & Information Industry Association, *The SPA Guide to Contracts and the Legal Protection of Software* (Software Publishers Association 1998) [hereinafter *The Guide*]. See also Peter Marx & The Software & Information Industry Association, *Contracts in the Information Industry IV* (Software & Information Industry Association 2003).



Table 3: EULA Terms and Bias: Methodology

ACCEPTANCE OF LICENSE	
Does license alert consumer that product can be returned if she declines terms?	1 = yes 0 = no
SCOPE OF LICENSE	
Does definition of "licensed software" include regular updates such as enhancements, versions, releases, etc.?	1 = yes 0 = no mention
Are there license grant restrictions?	0 = no or no mention -1 = yes (e.g., for business-oriented products, "for business purposes" or "internal purposes only" language; for consumer-oriented products, restrictions on commercial use)
Can licensee alter/modify the program?	0 = yes or no mention -1 = no
Can licensee create derivative works?	0 = largely unrestricted or no mention -1 = strict prohibition, derivative works owned by licensor, or need permission of licensor
TRANSFER OF LICENSE	
Are there limitations on transfer?	0 = no or no mention -1 = some or full restrictions (licensee cannot assign, transfer, lease, sublicense, distribute, etc.; or, needs written consent of licensor)
Can licensee transfer the software to an end user who accepts the license terms without licensor's prior permission?	0 = yes or no mention -1 = no
WARRANTIES AND DISCLAIMERS OF WARRANTIES	
Are there express warranties?	1 = yes 0 = no
Is there a limited warranty stating that software is free from defects in materials and workmanship or that the software will work according manual specifications in force for a limited period?	1 = yes 0 = no
Is there a limited warranty stating that the media of software distribution and documentation are free from defects in force for a limited period?	1 = yes 0 = no
Is the disclaimer in caps, bold, or otherwise conspicuously presented?	0 = yes or no disclaimers appear -1 = no

Disclaims IWM and IWFPF or contains "AS IS" language?	0 = no -1 = yes
Disclaims warranty that software will not infringe on third parties' intellectual property rights?	0 = no -1 = yes
<b>LIMITATIONS ON LIABILITY</b>	
Who bears the risk of loss?	0 = licensor, for losses caused by factors under licensor's control, or no mention -1 = licensee
Who bears the performance risk?	0 = licensor (for causes under licensor's control), or no mention, or licensee (for uses expressly forbidden by licensor) -1 = licensee (language "licensee assumes responsibility of choice of product and functions," etc.)
Disclaims consequential, incidental, special, or foreseeable damages?	0 = no or no mention -1 = yes
Are damages disclaimed under all theories of liability (contract, tort, strict liability)?	0 = no or no mention -1 = yes
What is the limitation on damages?	0 = no mention or cap on damages greater than purchase price -1 = cap on damages less than or equal to purchase price
Is there an indemnification clause?	0 = no, no mention, or two-way indemnification -1 = indemnification by licensee
<b>MAINTENANCE AND SUPPORT</b>	
Does base price include M&S for 31 days or more?	1 = yes 0 = no or no mention
<b>CONFLICT RESOLUTION</b>	
Forum specified?	0 = court, choice of licensee, or no mention -1 = specific court or mandatory arbitration
Law specified?	0 = same as forum or no mention -1 = yes and different from forum
Who pays licensor's attorney fees?	0 = paid by losing party or no mention -1 = paid by licensee

NOTE: The table describes the terms tabulated for the EULAs in the sample and how each term is scored for purposes of measuring the overall buyer (licensee) versus seller (licensor) bias of the contract. Negative scores capture pro-seller terms and positive scores capture pro-buyer terms. Zero scores capture neutral terms or (in case the term is not discussed in the particular contract) terms that would correspond to the default rule.

members. The SIIA is one of the most important trade associations for the software industry. The contracts in the *Guide* are intended to guide software publishers and their counsel in structuring their software agreements. The *Guide* states that “[b]y their nature, many of the provisions in these contracts favor one side or the other in a given transaction; using them without understanding may cause significant problems.” Both references thus provide an external reference on whether to interpret a particular term as being pro-seller or pro-buyer. I corroborate the taxonomy above with two additional sources, the leading textbooks in software and e-commerce law by Ronald Mann and Kane K. Winn *E-Commerce*, and Mark Lemley’s *Software and Internet Law*.<sup>18</sup> The four accounts appear to be consistent with one another, at least with respect to the terms that I consider.

In general, I focus on terms that govern buyers’ “normal use” of the software.<sup>19</sup> Of course, because the typical EULA in the sample is 1,500 words long and some are several times that long, it is not possible to fully summarize every aspect of every EULA. The bias index should be viewed as a rough and imperfect measure of the most common and important standard terms. I now introduce the seven broad categories of terms.

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<sup>18</sup>Ronald J. Mann & Jane K. Winn, *Electronic Commerce* (Aspen Publishers 2002); Mark A. Lemley, Peter S. Menell, Robert P. Merges & Pamela Samuelson, *Software and Internet Law* (Aspen Publishers 2003).

<sup>19</sup>For example, the index does not include EULA terms prohibiting buyers from using the software with the purpose of creating competing products (although much of this restriction overlaps with limitations on alterations or modifications). The index excludes terms dictating sellers’ use of buyers’ personal information, or provisions dealing with buyers’ privacy. Also excluded are terms describing copyright or patent rights, as they belong to the realm of federal intellectual property law. Some terms included in the index arguably conflict with some aspects of federal intellectual property law. For example, a term fully restricting product transfer may conflict with the “first sale” doctrine of the Copyright Act (17 U.S.C. § 109). Numerous courts have held that since software is licensed and not sold, the “first sale” doctrine does not apply to software transactions. See, e.g., *Adobe Sys. v. Stargate Software, Inc.*, 216 F. Supp. 2d 1051 (2002) (holding that because the clickwrap license made software purchaser a licensee and not a copy owner, the first sale doctrine did not apply). This view, however, is not unanimous. Other courts have held that in mass-market transactions, the software is deemed to be sold and not licensed. *Softman Prods. Co. v. Adobe Sys. Inc.*, 171 F. Supp. 2d 1075 (2001) (holding that software purchaser was copy owner, despite purported license). See also Mark A. Lemley, *Beyond Preemption: The Law and Policy of Intellectual Property Licensing*, 87 Cal. L. Rev. 111 (1999). Finally, I exclude terms that would be deemed unenforceable by any court, such as disclaimers of good faith.

*A. Acceptance of License*

Almost all sellers include a notice in the EULA alerting the buyer that he or she should not install the software if the buyer does not agree to its terms. However, a smaller fraction also informs buyers that they can return the product for a full refund within a specified period of time. Although many sellers post their return policy somewhere on their website, sellers that provide this additional notice in the license itself receive one point. All else equal, buyers would prefer this additional notice, since a refund policy posted on a website soon after a buyer purchases the product can easily be changed or eliminated by the seller soon after a purchase is made, whereas a refund policy that appears on the EULA cannot.

*B. Scope of License*

The next set of terms involves the breadth of the definition of the licensed software. Sellers often include future updates with the sale of their product for a limited period. Other things equal, they also prefer to define their product narrowly in order to charge a fee for subsequent enhancements or additions, while buyers prefer that these be included in the license.<sup>20</sup> If the EULA is silent as to the definition of the product being licensed, the term gets a neutral score, but if it explicitly includes enhancements, or updates, it receives one point.

The other terms in this category pertain to license grant restrictions. Sellers may allow use of the software solely “for internal business purposes” or “for noncommercial purposes.” Restrictions on commercial use allow sellers to price discriminate. Other things equal, buyers prefer a broader scope of permissible uses.<sup>21</sup> I score a negative point for the presence of any of such restriction. Second, I note whether sellers prohibit buyers from altering or modifying the software. Sellers include these limitations to protect their intellectual property by preventing buyers from discovering the source code of the software. Restrictions on modifications also halt buyers’ ability to make improvements to the software, potentially stifling competition.<sup>22</sup> Besides these motivations, buyers may simply wish to have the ability

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<sup>20</sup>See Overly & Kalyvas, *supra* note 16, at 30.

<sup>21</sup>*Id.* at 31.

<sup>22</sup>The purpose for this kind of provision is usually to simplify the vendor-furnished maintenance services. By prohibiting the buyer from altering the code of the software, the vendor is solely

to modify the software in order to customize it to better suit their particular needs.<sup>23</sup> I score a negative point for the presence of this term. I also note whether sellers prohibit the creation of derivative works of the software. The sellers' rationale for this restriction is similar to the one banning modifications, as is the rationale for the buyers' preference that this restriction is not present. Again, I score a negative point for the presence of this restriction.

### *C. Transfer of License*

Some sellers impose restrictions on transfers of the product by prohibiting assignment, leasing, renting, distributing, selling, or transferring. Sellers may include these restrictions to price discriminate or to prevent selling the software to a particular class of purchasers (such as a competitor).<sup>24</sup> For a given price, buyers prefer software to be freely transferable, so I give a negative point if the seller adds restrictions on transfer. I also note if sellers allow buyers to make a one-time transfer when the subsequent holder agrees to be bound by the terms of the license.<sup>25</sup> I give a negative point if the seller does not allow this one-time transfer exception.

### *D. Warranties and Disclaimers of Warranties*

The first term in this subcategory notes whether sellers make any express, unrestricted warranties. For example, a few vendors warrant that the software will work according to the specifications included in the product's manual or make express statements about particular functionalities of the product, and do not limit the remedies available to buyers in case of breach of warranty. In the literature, warranties have often been interpreted as a signal of quality (sellers of low-quality products would find it too costly to grant broad war-

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maintaining its own code. For a discussion of how restrictions on use affect competition, see Lemley, *supra* note 12, and Mark A. Lemley, Brief Amicus Curiae of American Committee for Interoperable Systems in *ProCD v. Zeidenberg* (7th Cir. 1996).

<sup>23</sup>See Overly & Kalyvas, *supra* note 16, at 33.

<sup>24</sup>See Lemley, Menell, Merges & Samuelson, *supra* note 18.

<sup>25</sup>Under § 117 of the Copyright Act, there is a prohibition of renting or lending the software under the "first sale" doctrine. This section also allows buyers to make archival copies, however. For a detailed account on the first sale doctrine in software licensing agreements, see *id.* at 306.

warranties) or as an insurance and repair contract.<sup>26</sup> Other things equal, buyers prefer express warranties of the type described above because they provide insurance against losses caused by product failure. The UCC awards buyers repair costs as well as consequential and incidental damages resulting from the breach of warranty.<sup>27</sup> I treat the presence of express warranties as more pro-buyer than the default rule.

I next consider whether the seller provides two common limited warranties. First, the seller may warrant that the software will perform according to document specifications for a limited period, as opposed to the unrestricted period involved in the unrestricted warranty. As noted, buyers benefit from this form of insurance, and the longer the period it covers, the better. The remedies for breach of these warranties are generally restricted to either repair or replacement of the software. I note whether this kind of limited warranty is offered. I also note whether sellers warrant that the media on which the software is delivered (e.g., CD-ROM) and the accompanying documents are free from defects in materials and workmanship for a limited period exceeding 30 days. Again, sellers are insuring against any defects in materials supplied and offering to repair or replace in case of warranty breach. I treat the presence of each of these limited warranties as pro-buyer since, other things being equal, buyers would prefer limited warranties to no warranties.<sup>28</sup>

In general, sellers disclaim the implied warranties of merchantability and fitness for particular purpose. The implied warranty of merchantability ensures that the good is “fit for the ordinary purposes for which such goods are used.”<sup>29</sup> The warranty for particular purpose is more specific, as it only

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<sup>26</sup>See Priest, *A Theory of the Consumer Product Warranty*, *supra* note 3.

<sup>27</sup>See UCC §§ 2-714(2), 2-714(3), 2-715(1).

<sup>28</sup>Note that these limited warranties might overlap to some extent with the coverage granted under the implied warranty of merchantability. A breach of this implied warranty entitles the buyer to recover consequential and incidental damages, which are much broader than the remedies provided by limited warranties. *Id.* Still, I consider a contract with limited warranties more pro-buyer than a contract without them as they arm the buyer with additional causes of action. More important, a buyer might find it easier to establish breach of a limited warranty than to argue that the product did not pass without objection in the trade. Also, as a practical matter, Table 4 shows that 90 percent of firms disclaim implied warranties. In this context, limited warranties are better than no warranties at all.

<sup>29</sup>UCC § 2-314.

arises if the seller had reason to know the buyer's specific intended use of the software. As a cost-saving strategy, sellers may prefer to disclaim these implied warranties and avoid being liable for (possibly large) consequential damages. Buyers, on the other hand, prefer broader warranties and broader remedies, all else equal. The presence of disclaimers is thus recorded as pro-seller.

For disclaimers of implied warranties to be valid, they must be "conspicuous" as defined by the UCC.<sup>30</sup> The disclaimer must be in capital letters, in bold, or under a title heading. To disclaim the implied warranty of merchantability, the disclaimer must include the term "merchantability."<sup>31</sup> Alternatively, sellers may disclaim all implied warranties by including "as is" language.<sup>32</sup> I note whether sellers comply with this aspect of the UCC requirement, and treat as pro-seller any disclaimer that is not conspicuous as defined by Section 2-316.<sup>33</sup>

The last disclaimer that I note is of particular importance to software products (or the licensing of any intellectual property). Section 2-312 of the UCC has an implied warranty of title. In intellectual property transactions, the implied warranty of title forces the seller to guarantee that the software will not infringe on third parties' intellectual property rights. This provision generally entitles buyers to indemnification by the seller in the event of an infringement action brought against the buyer by a third party. Not surprisingly, many software sellers disclaim this warranty, and I interpret such disclaimers as pro-seller.

An important consumer protection law is the Magnuson-Moss Warranty Act, a disclosure law enacted in 1975 to regulate the form and content

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<sup>30</sup>UCC § 2-316.

<sup>31</sup>UCC § 2-316(2).

<sup>32</sup>UCC § 2-316(3)(a).

<sup>33</sup>I track whether disclaimers in EULAs are conspicuous as a general proxy for "text friendliness." Many courts have enforced disclaimers that were neither in capital nor in bold letters, or under a title heading. In *Valley Paving, Inc. v. Dexter & Chaney*, 42 U.C.C. Rep. Serv. 2d (Callaghan) 433 (2000) at 6, the court stated: "Here, the disclaimer of warranties is not all in capital letters or in contrasting typeface or color. But as the district court noted, the disclaimer 'was not hidden in an obscure part of a long, complicated document' . . . Therefore, we conclude that the district court did not err in concluding that the disclaimer of warranties is conspicuous and properly disclaims the implied warranties of merchantability and fitness for a particular purpose." For another case citing location of a disclaimer as sufficient to determine conspicuousness, see *Agristor Leasing v. Guggisberg*, 617 F. Supp. 902, 909 (1985).

of consumer product warranties.<sup>34</sup> The Act does not mandate sellers to include warranties, but rather requires that sellers, if they choose to provide warranties, draft them in clear language.<sup>35</sup> In addition, the Act requires that warranties be available for inspection prior to purchase<sup>36</sup> and that, if an express (whether full or limited) warranty is given, implied warranties not be disclaimed for the period of such warranty. I chose not to tabulate whether the warranties in my EULA sample are Magnuson-Moss compliant because it is still unsettled whether Magnuson-Moss applies to software products. The Act applies to “any tangible personal property which is distributed in commerce and which is normally used for personal, family, or household purposes.”<sup>37</sup> To this date, and despite lengthy discussion, there is still no consensus on whether software should be interpreted as “tangible personal” property.<sup>38</sup>

*E. Limitations on Liability*

Sellers often dedicate a considerable portion of the EULA to disclaiming and limiting remedies and liabilities. The first term here that I record is whether the EULA assigns the risk of loss exclusively to the buyer or the seller, or allocates the risk between both. If the risk of loss is assigned to the buyer under all circumstances, even for losses caused by factors under the seller’s control, the clause is clearly pro-seller. I also note whether the contract allocates risks arising out of the performance of the software. An example is system slowdown created by the use of the product. In the software environment, performance risk is defined as the degree to which a system or component accomplishes its designated functions within given constraints, such as speed, accuracy, or memory usage.<sup>39</sup> Hence, language such as “the entire

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<sup>34</sup>15 U.S.C. §§ 2301–2312 (1976).

<sup>35</sup>15 U.S.C. § 2302(a).

<sup>36</sup>15 U.S.C. § 2302(b)(1)(a).

<sup>37</sup>15 U.S.C. § 2301.

<sup>38</sup>See, e.g., Federal Trade Commission, Symposium, Warranty Protection for High-Tech Products and Services (2000) (<http://www.ftc.gov/bcp/workshops/warranty/>).

<sup>39</sup>See Connie U. Smith & Murray Woodside, Performance Validation in Early Stages of Software Development, in *System Performance Evaluation: Methodologies and Applications* (Erol Gelenbe ed., CRC Press 2000).



risk as to results and performance of the software is assumed by the licensee” is counted as pro-seller.

Damages associated with breach of a software license agreement might include lost revenues, data-recovery fees, or loss of reputation, as well as direct damages. Sellers often limit damages to some multiple of the product price. I consider a limit on damages that is less than or equal to the product price to be a relatively pro-seller term, and a greater limitation (or no limitation) to be neutral. Except for restricting the recovery of unforeseeable or speculative losses, the UCC contains no other limitations on damages.<sup>40</sup>

Sellers also limit damages by disclaiming consequential, special, and incidental damages, or by disclaiming damages for foreseeable losses. I interpret these disclaimers as pro-seller, since they limit buyers’ ability to recover damages. As just mentioned, the UCC allows a buyer to recover these damages under breach of contract only if they are foreseeable and not speculative. I interpret such disclaimers as pro-seller because they limit buyers’ ability to recover damages.

On occasion, sellers also restrict the theories of liability on which buyers can base causes of action against them. If the product defect causes physical injury or property damage, for example, a buyer can bring an action in tort against the seller. If a seller waives all types of damages under all theories of liability, whether contract, tort, or strict liability, the buyer will have greater difficulty challenging this disclaimer. I thus interpret such waivers as pro-seller.

The last limitation on liability that I study is indemnification clauses. Indemnification for intellectual property infringement is the most common licensor-provided indemnity.<sup>41</sup> As noted above, a buyer’s right to seller indemnification is implied in Section 2-312 of the UCC. On the other hand, the licensee may be required to indemnify the licensor against claims arising from the licensee’s use of the software in a manner outside the uses permitted by the EULA. I interpret the clause as neutral if there is no mention of indemnities, or if there is an explicit two-way indemnification. I record one-way indemnification clauses by the buyer as pro-seller.

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<sup>40</sup>See UCC § 2-715(1), (2)(a).

<sup>41</sup>See Overly & Kalyvas, *supra* note 16, at 58.

### F. Maintenance and Support

Maintenance and support (M&S) provisions vary widely across firms and products. I record whether M&S for 31 days or more is included in the product's base price. Many companies offer high levels of support for an additional fee, but my approach allows for a simple comparison of standard terms across companies. A more practical reason to limit the detail I record on M&S provisions is that these terms are not always discussed in the EULA itself, but rather on a separate agreement or on the website; our purpose here is to describe EULA terms.

### G. Conflict Resolution

The last category of EULA terms involves dispute resolution. Choice of forum and law clauses may allow sellers to save costs by increasing the predictability of results. Alternatively, sellers may use them strategically to direct disputes toward business-friendly jurisdictions.<sup>42</sup> Similarly, by mandating arbitration, sellers may prefer the cost-saving aspect and expedience, but also wish to eliminate the possibility of class actions. I interpret the specification of a particular forum or a mandatory arbitration provision as generically less buyer friendly than the default rules, under which buyers usually have more options about where to bring claims.<sup>43</sup>

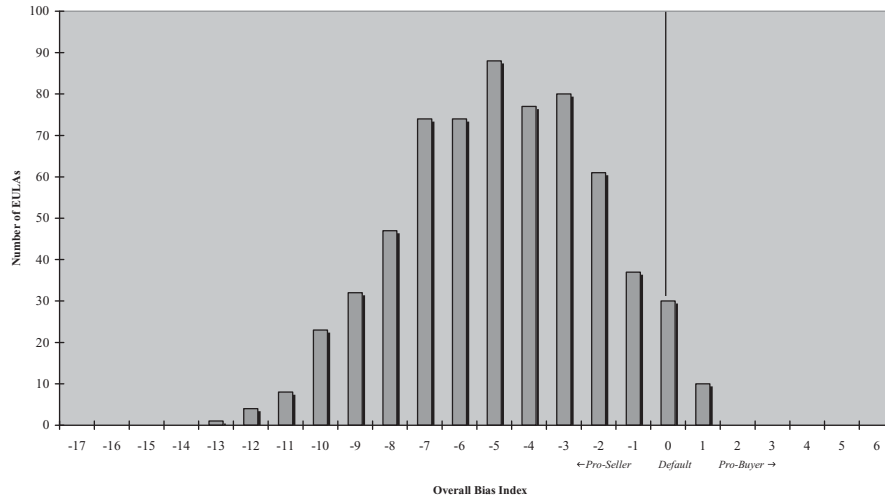
I do not interpret choice of law provisions *per se* as being less buyer friendly. Sellers commonly employ them to minimize legal fees and to increase certainty in outcomes.<sup>44</sup> However, I do note when the choice of law

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<sup>42</sup>See UCC Art. 1, § 1-105.

<sup>43</sup>*Carnival Cruise Lines, Inc. v. Shute*, 499 U.S. 585 (1991); *Bremen v. Zapata Off-Shore Co.*, 407 U.S. 1 (1972). See also Restatement of the Law (Second), Conflict of Laws 80 (1971). See, e.g., Lee Goldman, *My Way and the Highway: The Law and Economics of Choice of Forum Clauses in Consumer Form Contracts*, 86 Nw. U. L. Rev. 700 (1992) (arguing that it would be efficient to assign the risk of litigating in distant forums to sellers, given that buyers rarely read boilerplate and sellers are better able to handle this risk).

<sup>44</sup>See letter from Larry E. Ribstein & Bruce H. Kobayashi to the Secretary of the Federal Trade Commission (<http://www.ftc.gov/bcp/worshops/warranty/comments/ribstein.htm>) (Noting that, "with respect to the need to protect consumers from unfair contract terms that choose the applicable state law is not subject to the same potential damages as enforcing other contractual terms. The effect of enforcing a choice-of-law clause is to apply a system of regulation imposed by a state legislature's and courts—not simply to enforce the rules preferred by one of the contracting parties.") See also Larry E. Ribstein & Bruce H. Kobayashi, *Uniformity, Choice of Law and Software Sales*, 8 Geo. Mason L. Rev. 261 (1999).

*Figure 1:* EULA bias—distribution.

differs from choice of forum, since this might indicate a strategic gerrymandering of the dispute-resolution process.<sup>45</sup> I thus interpret such discrepancies as pro-seller.

Finally, I record whether the EULA specifies who pays the sellers' attorney fees. Contracts in which the buyer is asked to pay for the seller's attorney fees regardless of the outcome of the dispute are obviously pro-seller.

## IV. EMPIRICAL RESULTS

### A. Overall Bias Correlations and Summary Statistics

Figure 1 shows the distribution of the overall bias index. As constructed, the maximum attainable overall bias index score is 6, a number associated with an extremely buyer-friendly EULA relative to default rules. The minimum attainable score is  $-17$ , which would reflect a contract disclaiming all rem-

<sup>45</sup>See John A. Burke, *Contract as Commodity: A Nonfiction Approach*, 24 *Seton Hall Legis. J.* 285 (2000).

edies, greatly restricting buyers' use of the software, and so on.<sup>46</sup> These theoretical extremes are reflected in the values of the x-axis of Figure 1. No contract reaches either of these extremes, although a few come close. The last row of Table 4 shows that in our sample, the average of the overall bias index is  $-4.85$ , meaning that the average EULA is, on net, about "five terms worse" than the default rules. The minimum score is  $-13$  and the maximum is  $2$ . The distribution has a nice bell shape.<sup>47</sup> It is clear that EULAs are almost always more pro-seller than the default rules of the UCC. However, the degree of bias varies considerably, and a handful of EULAs are actually slightly pro-buyer.

Table 4 breaks these results down into individual terms. It shows the mean score of each term and the correlations between terms. Some terms clearly appear more often than others. For example, three terms are present in almost all EULAs: a term restricting the ability of the user to transfer the software is included in 93 percent of sample EULAs; a term disclaiming implied warranties appears in 90 percent; and a disclaimer of consequential damages appears in 89 percent. The results are not surprising. All three terms effectively opt out of more generous, buyer-friendly default rules of Article 2. Two other terms are also particularly common. One is a term offering basic maintenance and support for a specified period, which appears in 68 percent of sample EULAs. The other is a term restricting the licensee to alter or modify the software (a posttransfer restriction), which appears in 63 percent of sample EULAs.

Aside from these common terms, Table 4 shows that EULAs differ considerably in regard to the remaining terms that comprise the index. This is a surprising finding, as standard form contracts are generally perceived to be quite uniform. One implication of such heterogeneity is that consumers do have some degree of choice over EULA terms, even if the boilerplate is nonnegotiable. Another interesting finding is that a little over a third of sellers include limited warranties in their EULAs (which are not advertised separately). This is contrary to a common view that sellers will offer the most

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<sup>46</sup>One reason the range of possible scores is not centered at zero is that the default rules of the UCC tend to benefit buyers.

<sup>47</sup>Specifically, the  $p$  values for the Shapiro-Wilk and Shapiro-Francia normality tests are  $p = 0.061$  and  $p = 0.134$ , respectively, indicating that the normality assumption cannot be rejected at the 5 percent level (but, depending on the test, could be rejected at the 10 percent level).



Is the disclaimer in caps?	x11	0.04	0.07	<b>-0.11</b>	<b>-0.13</b>	<b>-0.18</b>	0.02	-0.06	-0.03	0.00	-0.02	1													
Disclaims IWM and IWFPF or contains "AS IS" language?	x12	<b>-0.20</b>	0.03	<b>0.02</b>	<b>0.24</b>	<b>0.18</b>	<b>0.22</b>	0.16	-0.05	<b>-0.13</b>	<b>-0.12</b>	1													
Disclaims warranty that software will not infringe on third parties' intellectual property rights?	x13	<b>-0.09</b>	<b>-0.15</b>	0.06	<b>0.18</b>	<b>0.25</b>	<b>0.09</b>	<b>0.09</b>	<b>0.09</b>	0.00	<b>-0.24</b>	<b>0.26</b>	1												
<b>LIMITATIONS ON LIABILITY</b>																									
Who bears the risk of loss?	x14	0.07	-0.03	0.06	0.04	<b>0.12</b>	0.07	<b>0.10</b>	0.01	<b>0.12</b>	0.05	<b>-0.08</b>	<b>0.08</b>	1											
Who bears the performance risk?	x15	<b>-0.08</b>	0.03	-0.07	<b>0.20</b>	0.08	0.04	0.05	<b>0.10</b>	-0.05	<b>0.09</b>	<b>0.11</b>	-0.01	0.02	1										
Disclaims consequential, incidental, and special damages?	x16	<b>-0.20</b>	-0.05	0.02	<b>0.20</b>	<b>0.19</b>	<b>0.26</b>	<b>0.14</b>	0.07	<b>-0.15</b>	<b>-0.11</b>	-0.05	<b>0.57</b>	<b>0.27</b>	0.07	1									
Are damages waived under all theories of liability (contract, tort, strict liability)?	x17	-0.07	0.00	<b>0.17</b>	<b>0.27</b>	<b>0.30</b>	<b>0.12</b>	<b>0.22</b>	0.04	-0.05	<b>-0.07</b>	<b>-0.16</b>	<b>0.19</b>	<b>0.30</b>	0.06	-0.02	<b>0.25</b>	1							
What is the limitation on damages?	x18	<b>-0.17</b>	<b>-0.13</b>	<b>0.12</b>	<b>0.28</b>	<b>0.22</b>	<b>0.19</b>	<b>0.20</b>	-0.01	-0.05	<b>-0.06</b>	<b>-0.12</b>	<b>0.27</b>	<b>0.24</b>	0.00	0.05	<b>0.31</b>	<b>0.35</b>	1						
Is there an indemnification clause?	x19	0.03	-0.01	<b>0.11</b>	-0.01	<b>0.11</b>	<b>0.10</b>	<b>0.10</b>	0.01	0.06	<b>0.11</b>	<b>-0.09</b>	<b>0.10</b>	<b>0.18</b>	0.11	<b>-0.03</b>	<b>0.08</b>	<b>0.14</b>	<b>0.08</b>	1					
<b>MAINTENANCE AND SUPPORT</b>																									
Does base price include M&S for 31 days or more?	x20	0.00	0.02	0.03	0.01	0.02	-0.01	<b>0.09</b>	-0.03	0.05	-0.03	-0.06	-0.02	<b>0.12</b>	<b>-0.09</b>	-0.04	0.01	0.07	0.04	0.03	1				
<b>CONFLICT RESOLUTION</b>																									
Forum specified?	x21	0.02	-0.10	0.13	0.20	0.14	0.12	0.18	-0.08	-0.03	0.03	<b>-0.22</b>	<b>0.18</b>	<b>0.30</b>	<b>0.10</b>	0.01	<b>0.18</b>	<b>0.23</b>	<b>0.23</b>	<b>0.23</b>	<b>0.09</b>	1			
Law specified?	x22	0.07	0.03	0.02	-0.04	-0.01	0.02	0.03	0.01	0.04	0.05	-0.04	0.02	-0.01	<b>0.09</b>	0.01	0.02	-0.05	0.06	0.03	-0.05	<b>0.10</b>	1		
Who pays licensor's attorney fees?	x23	<b>0.09</b>	0.04	0.05	0.03	-0.03	0.02	0.06	0.02	0.06	0.06	0.00	0.03	-0.07	-0.04	0.03	0.03	<b>0.09</b>	0.07	0.06	-0.06	<b>0.13</b>	-0.01	1	
<i>Overall Bias Index</i> (sum of 23 above terms)		<b>0.13</b>	0.05	<b>0.24</b>	<b>b</b>	<b>0.48</b>	<b>0.31</b>	<b>0.52</b>	<b>0.10</b>	<b>0.25</b>	<b>0.16</b>	-0.06	<b>0.42</b>	<b>0.46</b>	<b>0.28</b>	<b>0.23</b>	<b>0.41</b>	<b>0.52</b>	<b>0.48</b>	<b>0.35</b>	<b>0.22</b>	<b>0.47</b>	<b>0.08</b>	<b>0.13</b>	1

NOTE: Mean, standard deviation, and correlation statistics for each of the terms comprising the overall bias index described in Table 3. Negative scores capture pro-seller terms and positive scores capture pro-buyer terms. Correlations in bold are statistically significant at the 5 percent level.

one-sided terms that courts will enforce because consumers are unlikely to read the fine print.

As to the correlations, the reader can scan for the means and correlations he or she finds most interesting, but as an overall view, of the  $(23 \cdot 22) / 2 = 253$  total pairwise correlations among the 23 EULA terms, 176 are positive, and 87 of those are significant at the 5 percent level. The remaining 77 correlations are negative, of which 30 are significant. The fact that most correlations are positive indicates that contracts that are pro-seller on one term tend to be pro-seller on others. Likewise, contracts that are pro-buyer on one term tend to be more pro-buyer on other terms.

### *B. Subindex Bias Correlations and Summary Statistics*

Table 5 provides the scores for each bias subindex and the correlation among them. Compared to the correlations among individual terms, clustering is even stronger among the seven bias subindexes. Of the  $(7 \cdot 6) / 2 = 21$  pairwise correlations for the subindexes listed in the table, 19 are positive, and 10 of these are significant at the 5 percent level. Two coefficients are zero. As expected, each of the subindexes is significantly positively correlated with the overall bias index, partly because of their mechanical relationship.<sup>48</sup>

### *C. Overall Index Bias and Product and Company Characteristics*

This section completes the descriptive analysis by examining the extent to which available product and company characteristics can explain EULA bias.

$$\text{Bias}_i = a_0 + a_m + b'X_i + c'Z_i + v_i \quad (1)$$

In Regression (1), the dependent variable is *Bias*, the overall bias index for the *i*th product. The independent variables are *X*, which is a vector of product characteristics including product price, dummies indicating

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<sup>48</sup>A qualification to Table 5 is an issue noted by Mark Gradstein in "Maximal Correlation Between Normal and Dichotomous Variables," 11 *J. Educ. Stats.* (1986). Gradstein notes that correlations between 0–1 and normal variables cannot take the usual range from –1 to +1 but rather have a theoretical upper bound between 0.798 (when the mean of the dichotomous variable is 0.050) and 0.30 (when the mean is close to 0 or 1). Gradstein's reasoning suggests that the correlations in the first column and the fourth row of Table 5 may give an understated impression of the correlation of the association because these cells involve correlations between 0–1 and more bell-shaped variables. The means of the dichotomous variables here are 0.49 and 0.68, values for which the Gradstein problem is not overly severe according to his numerical simulations.

Table 5: EULA Terms and Bias: Subindex Summary Statistics

	# of Terms Included	Mean (SD)	Correlation							
			Acceptance of License	Scope of License	Transfer of License	Warranties and Discl. of	Limitations on Liability	Maintenance and Support	Conflict Resolution	
Acceptance of license	1	0.49 (0.50)	1							
Scope of license	4	-1.05 (0.98)	-0.10***	1						
Transfer of license	2	-1.40 (0.61)	0.00	0.32***	1					
Warranties and disclaimers of warranties	6	-0.84 (1.00)	0.13***	0.03	0.09**	1				
Limitations on liability	6	-2.40 (1.24)	-0.14***	0.37***	0.32***	0.23***	1			
Maintenance and support	1	0.68 (0.46)	0.00	0.03	0.07*	0.03	0.02	1		
Conflict resolution	3	-0.33 (0.50)	0.04	0.18***	0.20***	0.10**	0.33***	0.07*	1	
Overall bias index	23	-4.85 (2.81)	0.13***	0.61***	0.55***	0.53***	0.76***	0.22***	0.48***	1

NOTE: Means, standard deviations, and correlations for each of the seven subindexes that comprise the overall bias index described in Table 3. Negative scores capture pro-seller terms and positive scores capture pro-buyer terms. \*\*\*, \*\*, and \* indicate significance at the 1 percent, 5 percent, and 10 percent level, respectively.



whether the product is oriented toward consumer end users, whether the license is multi-user, and whether the license is for developers; and  $Z$ , which is a vector of firm characteristics that includes the natural log of revenue, the natural log of company age since incorporation, and a dummy for whether the company is publicly traded. Both models include Amazon.com software market fixed effects. Standard errors are clustered at the company level to adjust for the fact that 49 companies have two (typically quite similar) EULAs in the sample.<sup>49</sup>

The first three specifications in Table 6 include all the products in the sample. In terms of product characteristics, the first row shows no evidence of a significant association between a product's price and the overall bias of its standard terms. Even if we had discovered a significant effect in these regressions, causality would be difficult to establish, since price and EULA terms may be jointly determined. Nonetheless, it is apparent that the simple OLS results suggest no first-order link between price and bias. There is some weak evidence that developer licenses come with generally more pro-buyer terms; in the first three specifications, they are associated with more pro-buyer EULAs by 0.69, 1.19, and 0.98 points, respectively. This makes sense, since developer licenses generally allow buyers to create and distribute derivative works, and thus are less restricted. The results also show that, on average, EULAs for consumer-oriented products are not more biased than EULAs for business-oriented products.<sup>50</sup>

Company characteristics are more robust determinants of EULA bias. Larger firms and younger firms both have more pro-seller EULAs. Possible interpretations for the size effect include the fact that larger firms are more likely to be advised by counsel who are better able to shield their firms from potential liabilities. Also, larger companies simply have more to lose in dollar terms, and hence may want more protection. The intuition for the age effect

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<sup>49</sup>Given the nature of the dependent variable, the residuals of these specifications do not strictly obey the classical least squares assumptions. I have verified that logit and (in cases of polychotomous dependent variables) ordered logit models deliver identical inferences in all results to follow. I present results for least squares regressions solely for simplicity of reporting and interpretation.

<sup>50</sup>The sample sizes offer sufficient statistical power to perceive small differences between samples. For example, suppose the EULAs of consumer-oriented products are worse by a net of one term than the EULAs of business products, i.e., have an overall bias index that is one unit more pro-seller. Given the current size of the sample and the standard deviation of the overall index, a statistical power calculation indicates that even though the true difference in means is only a single term, I would be 99.45 percent likely to (correctly) reject the null of equal means.

Table 6: Regressions: EULA Bias and Product and Company Characteristics

	<i>Dependent Variable: Overall Bias Index</i>					
	<i>All</i>	<i>All</i>	<i>All</i>	<i>Consumer</i>	<i>Business</i>	<i>Cos. W/Both</i>
	(1)	(2)	(3)	(4)	(5)	(6)
Ln price	0.10 (0.09)	0.09 (0.10)	0.04 (0.10)	0.37** (0.18)	-0.10 (0.12)	-0.12 (0.22)
Consumer	0.42 (0.27)	0.22 (0.27)	0.23 (0.25)	.	.	-0.32 (0.40)
Multi-user	-0.4 (0.39)	-0.36 (0.39)	-0.40 (0.45)	-1.73 (1.65)	-0.22 (0.47)	0.04 (0.44)
Developer	0.69* (0.41)	1.19** (0.48)	0.98* (0.50)	1.49 (0.93)	0.56 (0.62)	0.07 (0.22)
Ln revenue	-0.20*** (0.06)	-0.19*** (0.06)	-0.17*** (0.06)	-0.18** (0.09)	-0.11 (0.10)	
Ln age	1.52*** (0.22)	1.37*** (0.22)	1.41*** (0.23)	1.03*** (0.39)	1.45*** (0.32)	
Public	-0.38 (0.43)	-0.45 (0.43)	-0.45 (0.44)	0.40 (0.61)	-1.31** (0.56)	
Fixed effects	.	Sector	Market	Market	Market	Company
<i>N</i>	647	647	647	289	358	98
Adj. <i>R</i> <sup>2</sup>	0.11	0.14	0.31	0.40	0.39	0.93

NOTE: Regression results. The dependent variable is the overall bias index of the EULA. Higher values indicate pro-buyer bias; lower values indicate pro-seller bias. Samples include all EULAs (All), EULAs of consumer-oriented products only (Consumer), EULAs for business-oriented products only (Business), or EULAs of the subset of companies for which I have collected licenses for both a consumer- and business-oriented product (Cos. W/Both). Other product characteristics include the log of product price, a dummy indicating a consumer-oriented product, and dummies for multi-user and developer licenses (the default is single-user license). Company characteristics include the size of the company as proxied by the natural log of revenue, the natural log of the age of the company since incorporating as of 2005, and a dummy for publicly traded companies. Fixed effects may include Amazon.com software sectors (e.g. “Business & Office”), Amazon.com software markets (e.g. “Business & Office > Business Accounting > Accounting”), or company (for the companies for which I have collected two EULAs). Standard errors are in parentheses and clustered by company. \*\*\*, \*\*, and \* indicate statistical significance at the 1 percent, 5 percent, and 10 percent level, respectively.

may involve seller reputation. Older companies may have created a more homogenous customer base over time, and thus are better able to provide insurance for certain types of losses, as opposed to newer companies with diverse customer bases. Alternatively, younger software companies may be more sophisticated about the licensing aspects of software than the industry pioneers, who may have designed their EULAs long ago and have not given much thought to them since. Or, younger companies whose survival

depends on the success of a small, unestablished product line may prefer stricter terms out of risk aversion. Of course, these interpretations are speculative.

These impressions from the full sample generally hold true for subsamples of business and consumer products as well, as the fourth and fifth columns of Table 6 show. The sixth specification, which again includes 49 companies that sell both business and consumer versions of a product, allows me to more precisely address the frequent concern by commentators and consumer advocates that sellers exploit unsophisticated customers by requiring them to accept more restrictive contracts than they do their savvy business buyers.<sup>51</sup> However, the coefficient on the consumer product dummy indicates that consumers are on average required to accept only a tiny and statistically insignificant quantity of additional pro-seller bias. What this shows is that sellers who could in principle easily discriminate among buyer types do not, in fact, offer significantly more one-sided terms to their less sophisticated consumers, at least in the context of software sold online.<sup>52</sup>

We noted earlier that Article 2 is more on point for some sets of terms (providing rich default rules to sets of terms such as warranties and disclaimers of liability) than for others. It might thus be worth focusing on the relationship of product and company characteristics and term bias for those sets of terms for which Article 2 has rich default rules. In unreported regressions similar to those in Table 6, I find virtually the same relationships when using a modified version of the overall index that excludes terms for which Article 2 is silent.

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<sup>51</sup>More recently, concerns have arisen over the practice in which companies selling over the Internet ask buyers to select either “home user” or “business” categories before being allowed to proceed with their purchases. The potential to discriminate is obvious.

<sup>52</sup>One might be concerned that this finding reflects the possibility that the EULAs of many products classified as “business” are actually directed to unsophisticated small businesses, thus muddying the comparison between business and consumer products. In coding the data, I classify products that were targeted to *both* businesses and members of the general public as “consumer.” Since many small businesses have similar software needs as those consumers operating a home office, this classification effectively groups small businesses in the relatively “unsophisticated” pool. In addition, to further account for the possibility that the group of EULAs categorized as “business” indeed includes EULAs of products directed to unsophisticated small vendors, I run a regression where I restrict my sample to the most expensive 30 percent of business-oriented products (as they are likely targeted to and only affordable by larger business) and compare the contract bias between consumer- and business-oriented products. I find no difference in bias (unreported).

#### D. Subindex Bias and Product and Company Characteristics

Table 7 explores the relationship between the bias of particular sets of terms and company and product characteristics by using the bias subindexes as the dependent variables in the following linear regression.

$$\text{SubBias}_i = a_0 + a_m + b'X_i + c'Z_i + v_i \quad (2)$$

*SubBias* is the bias for one of the seven categories of terms that comprise the bias index for the *i*th product.

The results for the individual subindexes are generally consistent with those in Model (1). A few interesting details arise, however. In regard to product characteristics, for most classes of terms there is no robust and statistically significant relationship between product price and EULA bias.<sup>53</sup> However, good warranty terms are associated with significantly higher prices. This makes sense because warranties are costly to provide and are arguably among the most salient terms to buyers. The second row of Table 7 shows that sellers do not offer more restrictive terms of *any* type to members of the general public. If anything, consumers tend to get slightly better terms in some respects. These results provide even stronger support for the conclusion that, at least in regard to prepackaged software, sellers are not offering more restrictive terms to unsophisticated consumers. Also, developer licenses tend to have more pro-buyer terms pertaining to terms defining the scope of the license and the buyers' ability to transfer the software, as evidenced from Regressions (3) and (6), which is natural.

We now examine the relationship between company characteristics and subindex bias. Five of the seven subindexes show a negative relationship between company size and subindex bias, three of which are statistically significant. Larger firms are more likely to have more restrictive terms defining the scope of the license, limitations of liability, and conflict resolution. Finally, older companies offer more pro-buyer terms in all seven categories and the relationship is statistically significant in six of them. Put differently, younger companies, controlling for size, offer less pro-buyer terms. Public companies also offer more one-sided terms, but the relationship is only robust in the case of warranty terms.

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<sup>53</sup>For two subindexes, ACCEPTANCE OF LICENSE and TRANSFER OF LICENSE, there is a very weak positive (in the case of the former) and negative (in the case of the latter) statistically significant relationship between term bias and price at the 0.01 confidence level that become apparent with the inclusion of market fixed effects.

Table 7: Regressions: EULA Subindex Bias and Product and Company Characteristics

	Dep. Var.: Acceptance of License		Dep. Var.: Scope of License		Dep. Var.: Transfer of License		Dep. Var.: Warranties and Disclaimers of Warranties		Dep. Var.: Limitations on Liability		Dep. Var.: Maintenance and Support		Dep. Var.: Conflict Resolution	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Ln price	0.03 (0.02)	0.04* (0.02)	0.02 (0.03)	0.01 (0.04)	-0.03 (0.02)	-0.04** (0.02)	0.13*** (0.03)	0.08** (0.04)	-0.04 (0.04)	-0.06 (0.04)	-0.01 (0.02)	-0.01 (0.02)	0.01 (0.02)	0.02 (0.02)
Consumer	0.03 (0.05)	0.02 (0.05)	-0.03 (0.09)	-0.02 (0.09)	0.13** (0.06)	0.12** (0.06)	0.14 (0.09)	0.06 (0.09)	0.06 (0.12)	-0.02 (0.12)	0.08* (0.05)	0.08* (0.04)	0.01 (0.05)	-0.01 (0.05)
Multi-user	-0.05 (0.07)	-0.06 (0.07)	0.06 (0.15)	0.11 (0.15)	-0.15* (0.08)	-0.10 (0.09)	-0.18 (0.14)	-0.22 (0.15)	-0.09 (0.15)	-0.06 (0.17)	-0.02 (0.07)	-0.00 (0.07)	-0.02 (0.07)	-0.08 (0.07)
Developer	0.09 (0.08)	0.15 (0.12)	0.37*** (0.13)	0.30* (0.17)	0.16* (0.09)	0.28*** (0.11)	0.13 (0.20)	0.20 (0.22)	0.05 (0.19)	0.03 (0.23)	0.00 (0.08)	0.00 (0.08)	-0.05 (0.07)	0.02 (0.10)
Ln revenue	0.01 (0.01)	0.01 (0.01)	-0.06*** (0.02)	-0.06*** (0.02)	-0.02 (0.01)	-0.02 (0.01)	0.02 (0.02)	0.03 (0.02)	-0.09*** (0.03)	-0.09*** (0.03)	-0.01 (0.01)	-0.01 (0.01)	-0.04*** (0.01)	-0.04*** (0.01)
Ln age	0.09** (0.04)	0.08** (0.06)	0.18** (0.07)	0.23*** (0.08)	0.08 (0.05)	0.07 (0.05)	0.30*** (0.08)	0.18** (0.08)	0.53*** (0.10)	0.50*** (0.11)	0.10*** (0.04)	0.10*** (0.04)	0.24*** (0.04)	0.25*** (0.04)
Public	0.10 (0.07)	0.09 (0.10)	0.06 (0.15)	-0.06 (0.14)	0.13 (0.09)	0.08 (0.09)	-0.33** (0.14)	-0.24** (0.15)	-0.28 (0.18)	-0.21 (0.19)	-0.06 (0.07)	-0.12* (0.07)	-0.01 (0.08)	0.01 (0.08)
Fixed effects	.	Market	.	Market	.	Market	.	Market	.	Market	.	Market	.	Market
N	647	647	647	647	647	647	647	647	647	647	647	647	647	647
Adj. R <sup>2</sup>	0.03	0.21	0.04	0.22	0.05	0.21	0.07	0.24	0.09	0.27	0.04	0.22	0.08	0.29

NOTE: The dependent variables are the seven subindex bias scores: Acceptance of License, Scope of License, Transfer of License, Warranties and Disclaimers of Warranties, Limitations on Liability, Maintenance and Support, and Conflict Resolution. Higher values indicate pro-buyer bias; lower values indicate pro-seller bias. The samples include all EULAs with required data. Product characteristics include the log of product price, a dummy indicating a consumer-oriented product, and dummies for multi-user and developer licenses (the default is single-user license). Company characteristics include the size of the company as proxied by the natural log of revenue, the natural log of the age of the company since incorporating as of 2005, and a dummy for publicly traded companies. Fixed effects include Amazon.com software markets (e.g. "Business & Office > Business Accounting > Accounting"). Standard errors are in parentheses and clustered by company. \*\*\*, \*\*, and \* indicate statistical significance at the 1 percent, 5 percent, and 10 percent level, respectively.

## V. CONCLUSION AND IMPLICATIONS

Standard form contracts are pervasive, but while a large literature discusses their content and enforceability at a theoretical level, there has been little systematic empirical investigation of their content and economic determinants. This article provides a detailed description of a large sample of an important type of modern standard form contracts—software EULAs. I analyze a sample of 647 EULAs from various software markets and measure the variation of 23 common terms, such as warranties and limitations on liability, to create an overall index of contract bias. An immediate conclusion is that the vast majority of the contracts in our sample are more pro-seller relative to the default rules of Article 2 of the UCC. Although EULA terms vary greatly across software markets, I find that larger and (controlling for size) younger firms tend to have more pro-seller terms than smaller and older companies. I find no evidence that firms offer worse terms with software targeted to the general public versus software targeted to larger business or corporate users.

The results also offer practical implications for judges, regulators, and practitioners who need to determine whether a term may be substantively unconscionable. By illustrating the range and frequency of EULA terms that appear in a large sample, the results can help determine whether a given contract or a particular term is unusual relative to industry practice. Finally, the results add some hard facts to the recent debates over the desirability of a uniform body of law for online contracting. Specifically, they indicate the classes of terms that contracting parties consider important, thus providing some guidance as to what the appropriate set of default rules should look like in online transactions involving software.