

Cross-Country Price Differentials in the Online Textbook Market

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Abstract

This paper investigates the cross-country differentials in online textbook pricing. The sample included prices of 95 English-language textbooks at nine large online bookstores the United States, Canada, the United Kingdom, and Germany in the spring of 2001. Regressions with individual book and store fixed show that textbooks were substantially cheaper in major foreign online bookstores than in major United States online bookstores. The differences between the least expensive United States bookstore in the sample, Barnes and Noble, and the least expensive foreign bookstore in the sample, Alphabestreet (UK), were 42 percent of list for a single book using standard shipping or 23 percent of list for expedited shipping. Differences were significant even across branches of Amazon. For instance, on a bundle of five books that had a list price of \$500 in total using standard shipping, a student could save \$167.66 by buying the books from Amazon (UK) rather than Amazon (US) and waiting an additional week for delivery. If the student choose the expedited shipping option (1-3 days) for both stores, she could save \$151.44 by buying the books from Amazon (UK). Savings were even larger if the student purchased from either Alphabestreet (UK) or Studentbookworld (UK).

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Introduction

This paper investigates the cross-country differentials in online textbook pricing. Textbooks are an interesting case, because students at U.S. universities spend substantial amounts of money on textbooks and are among the most price-sensitive consumers. Until recently, search was difficult at best, because virtually the only place one could purchase new textbooks was a campus bookstore, and almost all campus bookstores sold new textbooks at full prices. The Internet has made search feasible, both nationally and internationally. Unlike some other goods, textbooks are relatively easy to search for, because a specific hardcover edition of a textbook has a unique identifier (an ISBN).

The authors collected prices of 95 English-language textbooks from nine large online bookstores the United States, Canada, the United Kingdom, and Germany in the spring of 2001. The sample included textbooks for computer science, economics, engineering, humanities, mathematics, and natural sciences. In order to more accurately identify high demand textbooks, only textbooks that were copyrighted in 1997 or later, had a list price of \$60 or higher, and were in the second edition or higher were included in the sample.

Regressions with individual book and store fixed show that textbooks were substantially cheaper in major foreign online bookstores than in major United States online bookstores. The difference between the least expensive United States bookstore in the sample, Barnes and Noble, and the least expensive foreign bookstore in the sample, Alphetstreet (UK), was 43 percent of list price. The differences between the two bookstores were 42 percent of list for a single book using standard shipping or 23 percent of list for expedited shipping. Differences were significant even across branches of

Amazon. For instance, on a bundle of five books that had a list price of \$500 in total using standard shipping, a student could save \$167.66 by buying the books from Amazon (UK) rather than Amazon (US) and waiting an additional week for delivery. If the student choose the expedited shipping option (1-3 days) for both stores, she could save \$151.44 by buying the books from Amazon (UK). Savings were even larger if the student purchased from either Alphabetstreet (UK) or Studentbookworld (UK).

These differences are large relative to those reported in studies of online retail sales in a single country, especially given that these are differences across highly branded vendors. For instance, Clay, Krishnan, and Wolff (2001) found that the lowest price United States bookseller was 10 percent cheaper than Amazon (US) for New York Times bestsellers and 18 - 25 percent cheaper for computer bestsellers, random books, and former New York Times and computer bestsellers. The average difference, however, between the high and low price for the largest branded vendors – Barnes and Noble, Amazon, and Borders – was less than 5 percent. Smith (2001) finds similar differences for books. Clemons, Hann, and Hitt (1998) analyze markets for airline tickets sold by online travel agencies. Controlling for observable difference in the tickets they find that prices for airline tickets differed by as much as 20 percent across the online travel agents. Chevalier and Carleton (2001) also found differences for DVD players on the order of 20 percent between authorized brick and mortar stores and unauthorized internet-only stores. Ellison and Ellison (2001) found that the difference between the first and the tenth lowest price for unbranded computer memory upgrades and motherboards was just 4 percent.

Data

Online stores were selected from among the largest vendors in each of four countries – the United States, Canada, the United Kingdom, and Germany.¹ Within each of the four countries that we examined, other vendors may offer lower prices, sometimes significantly lower prices. For a student transacting with an international vendor, the student is likely to use a large national vendor to ensure that she will not be defrauded and that the books will be shipped on time. Within the United States, some students will seek out the lowest priced vendor. Complaints from students about slow shipping times or delayed availability from low-priced vendors such as Buy.com led us to focus on vendors with a reputation for reliability.

The authors collected prices of 95 English-language textbooks from nine large online bookstores in four countries in the spring of 2001. Textbooks were randomly selected from Varsitybooks' categorical listings in computer science, economics, engineering, humanities, mathematics, and sciences. In order to more accurately identify high demand textbooks, we screened for textbooks that were copyrighted in 1997 or later, had a list price of \$60 or higher, and were in the second edition or higher.

To ensure data quality, we collected unit prices and shipping costs three times per week for eight weeks in February and March 2001. In aggregating prices up to the week level, we used the minimum weekly price for each book at each store. The weekly average currency rate was used in the conversion to United States dollars since customers

¹ Initially intended to include Asian bookstores as well, but we found that they tend to carry a very small selection of English-language textbooks. Discussions with industry sources indicated that U.S. based publishers may actively restrict the sale of foreign editions that are available in these countries (at very low prices on very low quality paper) over the Internet.

generally do not know when their credit cards will be charged. Fluctuations in the currency exchange rates were small in magnitude during this period.

One important difference across countries is the tax rate. The United Kingdom exempts books from VAT (Value Added Tax) while Germany imposes a 7% VAT automatically, which cannot be refunded in the case of textbooks. Canadian stores do not levy the GST (Goods and Services Tax) on international shipments. Stores in the United States levy the tax only if the store has a physical presence in the state. The customer is responsible for the payment of this “use tax”, but it is seldom paid and the states do not enforce it strictly. We assumed that our hypothetical student was based in Pittsburgh, PA. Since none of the U.S. based stores have a physical presence in the state of Pennsylvania, no sales tax was included.

United States Customs permits textbooks (and all other bound printed books) to enter the country duty free.² To expedite the process and reduce the applicable paperwork, Customs suggests that orders be below \$2000, so they will be subject to informal entry. So unless a student is ordering a huge quantity of textbooks, customs duties (or delay) will not be a significant issue.

Many stores offered a variety of shipping options. In our analysis, we focused on two – standard shipping and expedited shipping. For United States bookstores, standard shipping is 3-7 business days. Amazon and Barnes and Noble charged \$3.49 plus \$0.99 per item, and Varsity Books charged \$3.95 plus 3% of the total book charges. There is likely to be roughly a one-week difference in arrival time between standard U.S. shipping and standard foreign shipping. To approximately equalize the shipping times, we also

compared expedited shipping in the United States with expedited foreign shipping, both of which offer shipping times of 1-3 business days. Table 1 presents the standard and expedited shipping rates for the stores in our sample.

Table 2 presents summary statistics for the sample. For each store and book category, it lists the number of observations, list price, average price, standard deviation, and price ranges. Normalized price is the unit price divided by the publishers recommended price (list price) for the United States. The list price was obtained from the Books in Print database. International differences in average normalized prices are striking. Unit prices for textbooks are cheaper in all of the foreign stores than in the United States stores, with Alphabetstreet (UK) offering the lowest prices.

Analysis

Table 3 presents the results of regressions on normalized unit price, normalized total price with standard shipping, and normalized total price with expedited shipping. All regressions include both store and book fixed effects. The differences across stores reported in Table 2 remain important. For instance, in column 1 of Table 3, our hypothetical student could save 0.46 of list price by purchasing the text from AlphabetStreet (UK) rather than Amazon (US). AlphabetStreet appears to have unusually low prices relative to both U.S. and other U.K. bookstores. A more reasonable comparison might be between Amazon (US) and Amazon (UK). The differences are still substantial – the student could save 0.36 of list price by purchasing the text from a different branch of Amazon.

In column 2 of Table 3, the normalized price now includes the cost of standard shipping for that book. The cross-border price differentials are of similar magnitude to column 1. Two stores look relatively less attractive – Amazon (DE) and Studentbookworld (UK) – because of their high standard shipping charges.³ As noted earlier, a book is likely to take one week longer to reach a student from an international store. A student who was purchasing a bundle of five books that had a list price of \$500 in total could save \$218.84 if he or she was willing to purchase the books from Alphetstreet and wait the additional week rather than purchase the books from Amazon (US).⁴ The savings would be smaller \$167.66, but still substantial, if the student purchased the books from Amazon (UK).

In column 3 of Table 3, the normalized price now includes the cost of expedited shipping for that book. Books from both domestic and international stores should reach the student in approximately the same amount of time (1-3 business days). This diminishes, but does not eliminate, the cross-border price differentials for a single book. For instance, by purchasing a single book from Alphetstreet (UK) rather than Amazon (US), the student could save 0.27 of the list price. Similarly, by purchasing a single book from Amazon (UK) rather than Amazon (US), the student could save 0.10 of the list price. Because of nonlinearity in the cost of expedited shipping (high fixed cost, low marginal cost), the differences remain large for a student who was purchasing a bundle of five books that had a list price of \$500 in total. By purchasing from Alphetstreet (UK)

o=1215,100000,0

³ We have not been able to determine whether the higher shipping prices reflect higher quality (faster shipping) or not.

⁴ Authors' calculations based on differences in the unit prices from Table 3 and the shipping charges listed in Table 1.

and not Amazon (US), the student would save \$206.89.⁵ And by purchasing from Amazon (UK) and not Amazon (US), the student would save \$151.44.

Conclusions

In the online textbook markets, there exist significant cross-country price differentials. Enterprising students can save \$150 or more on a \$500 bundle of textbooks by buying them from a major United Kingdom bookstore rather than a major United States bookstore. The existence of price differentials of this magnitude – even across branches of Amazon – raises two questions.

What is the source of these price differences? One possibility is that the online book market in the United Kingdom is much more competitive than the online book market in the United States. This would imply that United State booksellers have very high margins. Available evidence suggests that average gross margins at online bookstores in the United States appear to be about 25 percent of list.⁶ These margins are too small to fully account for cross-country price differences. A second possibility is that textbook publishers engage in international price discrimination. This explanation is supported by conversations with industry sources and the lower royalty rates paid to authors on international sales.

Are students flocking to take advantage of these price differences? An informal survey of students suggests that they are not. The reasons seem to be twofold. First, the default for comparison shopping engines such as Dealtime, Pricescan, and MySimon is to

⁵ Authors' calculations based on differences in the unit prices from Table 3 and the shipping charges listed in Table 1.

only search U.S.-based online bookstores. For instance, to search United Kingdom or German bookstores on Dealtime, a student has to click a small link at the bottom of the page. So the casual searcher may not learn about lower prices in the United Kingdom. Second, customs regulations are not always easy to interpret, so students may not understand the textbooks enter duty-free and that the limit for informal entry is \$2,000. If these two problems were resolved through better information, Stigler (1961) and the empirical studies on the effect of information on prices suggest that we would probably see cross-country price differentials diminish as increasing numbers of students took advantage of the arbitrage opportunities.⁷

⁶ Clay, Krishnan, and Wolff (2001). Gross margins do not include order fulfillment costs, which typically run 10-15 percent of list. Since most of the costs of order fulfillment are fixed, they may be as low as 2-5 percent of list for high value books such as textbooks.

⁷ See Benham (1972), Cady (1976), Devine and Marion (1979), Feldman and Begun (1978, 1980), Glazer (1981), Kowka (1984), and more recently Milyo and Waldfogel (1999) and Sorenson (2000).

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Table 1: Shipping Times and Rates

<i>Store</i>	<i>Standard</i>			<i>Expedited</i>		
	Days	Base	Marginal	Days	Base	Marginal
Amazon (US)	3-7 days	\$3.49	\$0.99	2 days	\$6.99	\$1.99
Barnesandnoble (US)	3-6 days	\$3.49	\$0.99	2-3 days	\$6.99	\$1.99
Varsitybooks (US)	3-7 days	\$3.95	3%	2 days	\$7.95	5%
Chapters (CA)	14 days	\$3.25	\$0.65	1-3 days	\$3.25	\$3.25
Indigo (CA)	7-14 days	\$4.52	\$1.27	1-3 days	\$7.80	\$1.95
Amazon (DE)	7-21 days	\$14.10	\$2.33	NA	NA	NA
Alphabetstreet (UK)	5-21 days	\$1.45	\$3.63	1-3 days	\$26.25	\$2.76
Amazon (UK)	5-7 days	\$4.28	\$2.90	1-3 days	\$29.00	\$2.90
Studentbookworld (UK)	7-10 days	\$1.45	\$10.88	NA	NA	NA

Notes: All amounts are in U.S. dollars. Marginal is a per book charge. The total cost for shipping one book is the sum of the base and the marginal charges. Times are as reported on the websites. Two of the sites – Studentbookworld and Amazon.de did not offer expedited shipping. Currency conversion was the average for the time period – 1 Pound = 1.45 USD, 1 CAD = 0.65 USD, 1 GM = 0.45 USD.

Table 2: Summary Statistics

All prices in USD	N	List Price	Unit Price	SD of Unit Price	Normalized Price	SD of Norm. Price
<i>Book Categories</i>						
Computer Science	591	76.88	62.21	15.10	0.81	0.19
Economics	615	91.69	81.13	24.62	0.89	0.26
Engineering	2367	104.03	83.30	23.98	0.80	0.23
Humanities	1237	76.46	62.60	20.59	0.82	0.25
Mathematics	585	96.01	78.45	25.50	0.83	0.28
Sciences	508	106.66	88.57	29.67	0.84	0.27
<i>Stores</i>						
Amazon (US)	757	93.72	93.03	14.79	1.00	0.07
Barnesandnoble (US)	760	93.76	89.96	15.57	0.96	0.09
Varsitybooks (US)	760	93.76	94.20	15.41	1.01	0.07
Chapters (CA)	648	93.25	73.70	13.89	0.80	0.13
Indigo (CA)	708	93.35	77.11	17.15	0.83	0.14
Amazon (DE)	663	93.53	78.82	28.82	0.85	0.28
Alphabetstreet (UK)	380	94.63	44.78	12.84	0.48	0.16
Amazon (UK)	663	93.97	59.54	27.11	0.64	0.26
Studentbookworld (UK)	564	93.53	54.37	25.76	0.59	0.27

Notes: List price is the publishers recommended price in Books in Print. Unit price is the price listed on a store's website. Normalized price is the unit price divided by the list price. The engineering category includes textbooks on aeronautical, chemical, civil, electrical, and mechanical engineering. The humanities category includes textbooks on architecture, philosophy, political science, psychology, and sociology. The mathematics category includes mathematics and statistics. The sciences category includes astronomy, biology, chemistry, and physics.

Table 3: Pricing across Bookstores

Independent Variables	Dependent Variable		
	Normalized unit price	Normalized total, standard shipping	Normalized total, expedited shipping
Constant	0.611 (0.024)	0.656 (0.024)	0.857 (0.023)
Amazon (US)	0.460 (0.009)	0.453 (0.009)	0.265 (0.008)
Amazon (DE)	0.319 (0.010)	0.444 (0.010)	
Amazon (UK)	0.104 (0.009)	0.126 (0.010)	0.158 (0.008)
Barnesandnoble (US)	0.426 (0.009)	0.419 (0.009)	0.231 (0.008)
Chapters (CA)	0.262 (0.009)	0.249 (0.010)	0.041 (0.008)
Indigo (CA)	0.296 (0.009)	0.303 (0.009)	0.108 (0.008)
Studentbookworld (UK)	0.065 (0.010)	0.145 (0.010)	
Varsitybooks (US)	0.471 (0.009)	0.489 (0.009)	0.315 (0.008)
ISBN fixed effects	Yes	Yes	Yes
Number observations	5903	5903	4676
R-squared	0.6488	0.6449	0.5721

Notes: The omitted store is Alphabetstreet (UK). Normalized unit price is unit price/list price. Normalized total, standard shipping is (unit price + standard shipping)/list price. Normalized total, expedited shipping is (unit price + standard shipping)/list price. ISBN fixed effects are individual book fixed effects. In regressions not reported here, the results were similar with book category fixed effects.

Conclusions In the online textbook markets, there exist significant cross-country price differentials. Enterprising students can save \$150 or more on a \$500 bundle of textbooks by buying them from a major United Kingdom bookstore rather than a major United States bookstore. The existence of price differentials of this magnitude “ even across branches of Amazon ” raises two questions. What is the source of these price differences? One possibility is that the online book market in the United Kingdom is much more competitive than the online book market in the United States. This would imply that