



A textbook example of international price discrimination

Christos Cabolis^{a,b}, Sofronis Clerides^{c,d,*}, Ioannis Ioannou^e, Daniel Senft^f

^a ALBA Graduate Business School, Greece

^b Yale SOM, International Center for Finance, USA

^c Department of Economics, University of Cyprus, P.O. Box 20537, CY-1678 Nicosia, Cyprus

^d CEPR, UK

^e Harvard Business School and Economics Department, USA

^f The Blackstone Group, USA

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Abstract

We show that books for general audiences are similarly priced internationally but textbooks are substantially more expensive in the United States. We argue that cost factors cannot explain this phenomenon and discuss several demand-side explanations.

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1. Introduction

International price comparisons have a long history in economics. Macroeconomists have used them extensively to test for purchasing power parity and the law of one price. International trade economists have been interested in international price differences as evidence of trade barriers while industrial organization economists have studied issues of market structure. The popular and business press have also

* Corresponding author. Department of Economics, University of Cyprus, P.O. Box 20537, CY-1678 Nicosia, Cyprus. Tel.: +357 22892450; fax: +357 22892432.

E-mail addresses: ccabolis@alba.edu.gr (C. Cabolis), s.clerides@ucy.ac.cy (S. Clerides), iioannou@hbs.edu (I. Ioannou), senft@blackstone.com (D. Senft).

Table 1
Estimates from the broad sample

Intercept	Textbook	US gen. book	US textbook	ln(pages)	Hardcover
1.045** (0.272)	0.268** (0.052)	0.126** (0.044)	0.306** (0.031)	0.345** (0.048)	0.343** (0.044)

$N=536$, $R^2=0.454$, $F\text{-stat}=56.52$. Robust standard errors in parentheses.

Significance levels: †10%, *5%, ** 1%.

shown a keen interest and frequently report intercity price comparisons for standardized products such as the Big Mac or a Starbucks cappuccino.

Following this tradition, we document the existence of very large differences in the prices of textbooks across countries. The average hardcover textbook price is roughly 50% higher in the United States than in the United Kingdom, and in some cases, the US price is as much as double the UK price. This is counter to the conventional wisdom that consumer goods are cheaper in the US than in Europe. We argue that cost factors cannot explain differentials of this magnitude; hence, price differences are almost exclusively demand-driven. We discuss several explanations for why demand may differ across countries. We also discuss why price differentials have persisted in the Internet era and speculate on whether this is likely to continue.

2. Data and results

Our data were collected from the Internet sites of Amazon.com in two distinct phases.¹ In May 2002 we collected information on prices and characteristics of 268 books that were on sale on both the US and UK websites of Amazon, Inc. This data set includes both textbooks and general audience books and we refer to it as our “broad sample”. In December 2002, we collected additional data on economics textbooks; this is our “econ sample”. In this phase, we broadened our sample by including Canada in the search and collected more detailed information about each book.²

We tested for price differences by running a simple hedonic regression of price on book characteristics and on dummy variables that aim to capture differences across countries and book types. The results are presented in [Table 1](#). Price depends on the length of the book (number of pages) and on the format (hardcover vs. paperback).³ Controlling for those cost-shifters, the coefficients on *US general book* and *US textbook* give the percentage differences of US price over UK price for general books and textbooks, respectively. Both types are more expensive in the US, and the premium is substantially higher for textbooks than for general books (30.6% versus 12.6%).⁴

Our second sample includes information on the US, UK and Canadian prices of 204 economics textbooks. The majority of those (132 titles, or 64.7%) are published by commercial publishers and the remainder by university presses. For each book format and type of publisher we estimated a separate regression of log price on the natural logarithm of the number of pages, LNPAGES; dummies for the US and Canada, US and CA; dummies that flag introductory textbooks, US-INTRO and CA-INTRO; and the

¹ The presence of an internet retailer who is an important player in both markets allows us to abstract from issues of heterogeneity in the retail environment and facilitates the data collection process.

² Full details on the data collection are provided in our working paper, [Cabolis et al. \(2005\)](#).

³ [Clerides \(2002\)](#) shows that those two variables explain a large part of book price variation.

⁴ Results are robust to several alternative specifications; see [Cabolis et al. \(2005\)](#).

reported delivery time with the cheapest shipping option, DELTIME, which takes values from 1 (fast) to 12 (slow). The coefficients on the US and CA dummies measure the percentage price premium charged in those countries relative to the UK. The coefficients on US-INTRO and CA-INTRO test whether this premium is different for introductory textbooks than it is for more advanced books. We defer a discussion of why this might arise for the next section.

The results are displayed in Table 2. In the case of commercial publisher hardcovers, the US textbook premium is a striking 47.8%. In Canada, it is smaller but still substantial at 24.8%. The coefficients on US-INTRO and CA-INTRO are small and insignificant, indicating no differentiation in the pricing of introductory versus advanced texts. For university press hardcovers, the premia are much smaller and quite similar at 14.3% and 13.2%, respectively. Paperbacks, on the other hand, are generally priced the same in all countries, with the exception of introductory texts by commercial publishers which command a substantial premium of 31.0% in the US and 23.1% in Canada (but the latter is not statistically significant). Apparently commercial publishers price discriminate across countries for all hardcovers but only for introductory level paperbacks. The coefficient on DELTIME is significant and positive in the case of hardcovers, indicating that longer delivery times lead to higher prices. We tested this result further by comparing the price difference on a one-to-one basis for each title and concluded that it is quite robust. Our explanation is that the more expensive books are specially imported from the US and for this reason they carry US prices.

Further insight into the different pricing structures across countries can be gained by comparing the price of a format when it is published on its own to the price of the same format when it is priced along with the other format. This is implemented by estimating a separate regression for each format–country pair:

$$\ln(p_i^{f,c}) = x_i \beta^{f,c} + \gamma^{f,c} \text{BOTHFORMATS}_i^c + \varepsilon_i, \quad (1)$$

where subscript i indexes titles and superscripts f and c are shorthand for format (hardcover or paperback) and country (US, UK, CA). The variable BOTHFORMATS is a dummy variable that takes the value of 1 if the title appeared in both formats in that country. This specification is appealing because it exploits only within-country variation, thus eliminating one possible source of misspecification. The same idea was used by Shepard (1991) in her pioneering paper on price discrimination in the gasoline market.

Estimates of $\gamma^{f,c}$ from each of the six regressions are reported in Table 3. The results are remarkably consistent across countries. Hardcover titles that are accompanied by a paperback are more expensive than equivalent hardcovers that are published on their own. The premium ranges from 19.8% in the case of the

Table 2
Estimates from the economics sample (dep. variable: $\ln(p)$)

	Commercial hardcovers	Univ. press hardcovers	Commercial paperbacks	Univ. press paperbacks
US	0.478** (0.043)	0.143** (0.045)	0.008 (0.072)	−0.048 [†] (0.026)
CA	0.248** (0.049)	0.132** (0.030)	−0.032 (0.066)	0.011 (0.036)
US-INTRO	0.027 (0.045)		0.310* (0.124)	
CA-INTRO	0.074 (0.062)		0.231 (0.149)	
DELTIME	0.024** (0.006)	0.021* (0.008)	−0.004 (0.011)	0.007 (0.006)
N	304	170	109	99
R^2	0.303	0.152	0.223	0.413
F -stat	40.23	6.30	3.92	15.64

Significance levels: [†]10%, *5%, **1%. Robust standard errors in parentheses. Intercept and $\ln(\text{pages})$ variable also included.

Table 3
Estimates of γ^{fc} in Eq. (1)

	United States		United Kingdom		Canada	
	Hardcover	Paperback	Hardcover	Paperback	Hardcover	Paperback
$\hat{\gamma}^{fc}$ (s.e.)	0.198** (0.045)	-0.082 (0.078)	0.506** (0.057)	-0.043 (0.054)	0.265** (0.055)	-0.102 (0.082)
N	173	68	171	85	173	64
R^2	0.592	0.415	0.353	0.391	0.333	0.260

Significance levels: †10%, *5%, **1%. Robust standard errors are reported. The regressions control for number of pages and for commercial versus university press.

US to a striking 50.6% in the UK. Paperbacks that are published along with hardcovers are somewhat cheaper than stand-alone paperbacks in all three countries but the difference is never statistically significant. This may be due to the relatively small sample. With a much larger sample, [Laband and Hudson \(2003\)](#) obtain a statistically significant 23.7% premium for sole-edition paperbacks. On the other hand, their sample is also broader than ours as it includes general economics books, not just textbooks.

Overall, two patterns emerge clearly from the analysis in this section. First, there exist substantial price differences in textbook prices across countries, particularly between the US and the UK. Second, commercial publishers practice international price discrimination to a much greater degree than university presses. In the next section, we discuss demand and supply side explanations of this phenomenon.

3. Sources of price differentials

Price differentials can arise from differences in cost, markups or both. Production costs could explain price differences if books were printed in the country that they are sold and printing costs are much higher in the US. This is not the case. Although we do not have complete information, all the textbooks we checked (including international editions) were printed in the United States. This also rules out transportation cost as a possible explanation. Other costs like distribution and marketing might differ but it is hard to see why they should be that much greater in the US. Even if such cost differences did exist, they would not explain why price differences exist for some types of books (textbooks) but not for others. The estimates from Eq. (1), which exploit only within-country variation, also lend support to our contention that cost differences are not a factor.

Hence, it must be that price differentials are due to differences in markups, and thereby demand. Why would demand be so different in the US? One explanation is agency. Textbooks are adopted by professors but paid for by students. This gives rise to an agency problem: one individual (professor) is acting on behalf of another (the student) without bearing any cost relating to his action. If one is willing to accept that professors in the US care less about how much students pay than professors elsewhere, then agency might explain observed price differentials. A second explanation involves copyright enforcement, which is much stricter in the US than most other countries. Competition from the photocopying machine would drive prices down in countries where this is prevalent because of weak copyright enforcement. It may be a stretch, however, to include the UK in that group.

Another possibility is the impact of the second-hand market. The ability to sell their book at the end of the semester makes students less price sensitive and thus tends to drive prices up. If markets for used textbooks are more active in the US (which they probably are), this could explain at least part of the variation. A testable implication of this theory can be formulated based on the different resale probabilities

across textbooks. It is reasonable to assume that the more advanced the textbook, the smaller the likelihood that it will be sold at the end of the semester. This implies that, if the second-hand market drives prices up, the US premium must be higher for introductory textbooks than it is for more advanced ones. Our estimates in Table 2 show no evidence of such a distinction. The hypothesis that the second-hand market creates the price wedge is not supported by our data.

An alternative explanation with a behavioral flavor relates the cost of textbooks to the cost of a university education. The latter is much higher in the United States than most other countries, including the UK and Canada. For students who pay several thousand dollars per year for tuition, paying a few hundred extra for the required textbooks might not seem exorbitant. On the other hand, students conditioned to expect free or almost free university education may find the cost objectionable.

Differences in the college education culture in the two countries may ultimately be the most likely explanation for textbooks price differences. In the United States, the textbook is an integral part of college education. In most courses, instruction centers around a single textbook that covers most of the material and includes exercises and practice problems. The textbook is the main reference for students and it is usually labeled as “required” for the course. In the UK, textbooks are not used in the same way. Students are usually given a list of books that are meant to be study aids rather than mandatory textbooks. Thus, students feel much less of an obligation to buy particular books, meaning that willingness to pay for textbooks is lower than in the United States. We feel that the central role of the textbook in US college instruction may be the primary source of price differentials.

Can these price differentials persist? The time sensitivity of textbook purchases and the agency issue will probably continue to allow publishers some leeway in pricing. It is unlikely, however, that they will be able to sustain price differentials of this magnitude in the long run. Rather than drop prices in the all-important US market, publishers will probably focus on further differentiating international editions and expanding their use. There is already talk of books that will be custom-made to the needs of each lecturer. This will allow publishers to maintain high US prices while limiting arbitrage. At least in the short run, US students should not expect too great a benefit from lower search costs and greater price transparency in the textbook market.

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