

Anatomy of a Textbook



– Part One –

“The Top 100”



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Introduction

This analysis is motivated by curiosity, a curiosity driven by the need to understand textbook pricing, ultimately asking, “What IS an appropriate price for a textbook?” Many claim that textbook prices are too high, that unnecessary editions are created to inhibit resale values, and that much of the content is not used in the course, having too much “academic fat”.

So, as with any product analysis, we decided to dissect textbooks – what are their physical features - # of pages, their weight, how much space they take up – and what’s selling, for how much, and by whom. Future reports will focus on cost drivers in the textbook manufacturing process, wasted space, the impact of digital and hybrid textbooks, the implications of the open education resources movement, and whatever else might help in creating factual analyses and assist in informed decision making. (But we maintain the right to draw subjective and best-guess-conclusions from the evidence at hand until that evidence changes.)

So, how much should a textbook or any formalized, vetted, quality-checked, educational content cost?

Assuming the top 100 ranked amazon.com sales is a fair sampling of the textbook market (which it may not be, but is probably close enough) and previous analysis of the cost structure of the textbook industry¹, we affirm that that prices can be much, much lower – 50 to 85% lower in fact.

How? Introduce price competition into the industry. Prices are kept high because there is little price competition between publishers for the same level of textbooks; tax dollars in the form of student loans and financial aid provide subsidies; and campus bookstores, with the implicit or explicit cooperation of college administrators, exercise their locational monopolistic powers. (Foothill College Bookstore, for example, often lists ISBN numbers that are not found elsewhere in the Internet universe, thus inhibiting comparison-shopping.²)

Similar to the leading drug companies, the traditional textbook publishers spend considerable dollars producing textbooks and ancillary materials, and to recoup their costs they spend large sums on marketing to potential adopters. Publisher gross margins typically run 65% to 78%³, which leaves considerable cash available for marketing and other endeavors.

Perhaps students do not embrace education technology like they do social or gaming technology. We may find that the most effective method of teaching is in-person using pencils, paper, rulers, protractors, compasses, and textbooks.

1 See other research postings at www.textbookequity.com

2 For example, searching for Math course ID 30095 (Winter 2011) ISBN 9781111026226 only links back to Foothill’s bookstore. Though title and author are listed, students cannot be sure that is enough information to buy the proper textbook elsewhere. Seems bookstores, perhaps by bundling other materials, are creating private ISBNs.

3 Chip Brian, *Smartrend*, 08/11/2010, <http://www.mysmartrend.com/news-briefs/news-watch/top-5-companies-publishing-industry-highest-gross-margin-meg-morn-jwa-mdp-mhp>



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Observations

Amazon.com published its top 100 textbooks sold during the spring of 2010⁴, and from that data (n=100) we note that: (See the graphs below this section and draw your own conclusions.)

- The #1 selling textbook is in Biology, #50 is a Calculus book, and #100 is in Psychology.
- When looking at the number of textbooks in the top 100 by discipline the rankings are:
 - Business⁵ (#1)
 - Psychology (#2)
 - Biology (#3)
- Interestingly enough, those three subjects add up to 39% of the top 100. Include Math and you have 47% of the textbooks in four subjects.
- Of the 14 Business textbooks in the top 100, half are in Marketing.
- The top 100 textbooks cost⁶ an average of \$135, ranging from \$65 to \$256, $\sigma \sim \$34$. The median is \$133.
- The most expensive textbook is in Chemistry (\$256), the least expensive Industrial Organization (\$35). However, base on average cost per discipline the most expensive textbooks are:
 - Law (\$205)
 - Engineering (\$195)
 - Chemistry (\$182)
 - Accounting (\$177)
- The range of prices by subject varies considerably. The average range of all the disciplines is \$41. Nine disciplines have average ranges that are 50% higher than the lowest priced book. These are (\$min – \$max price):
 - Chemistry (\$134 – \$256)
 - Math (\$97 – \$221)
 - Finance (\$115 – \$180)
 - Business (\$35 – \$193)
 - Biology (\$96 – \$178)
 - Statistics (\$105 – \$177)
 - Psychology (\$79 – \$146)
 - Speech/Communication (\$53 – \$154)
 - Sociology (\$59 – \$101)
- The price per page ranges from \$0.09 to \$0.29, averaging \$.18.
- Each textbook, on average, is 789 pages, weighs 4 pounds, and occupies 109 cubic inches of space. (Cube root ~4.781 inches.)
- There are 13 listed publishers of the 100 textbooks. When combined into their parent company, there are only five publishers, and the top three account for 85% of the top 100 textbook sales.

4 https://images-na.ssl-images-amazon.com/images/G/01/rainier/help/top100_textbooks_spring2010.html

5 Excludes economics, accounting, and finance books.

6 Excludes taxes, shipping and handling.



- Amazon.com’s rankings are ordinal. Since we do not have quantities sold we do not know how close rankings are to each other. Such data, we suppose, is closely guarded.

The Top 100

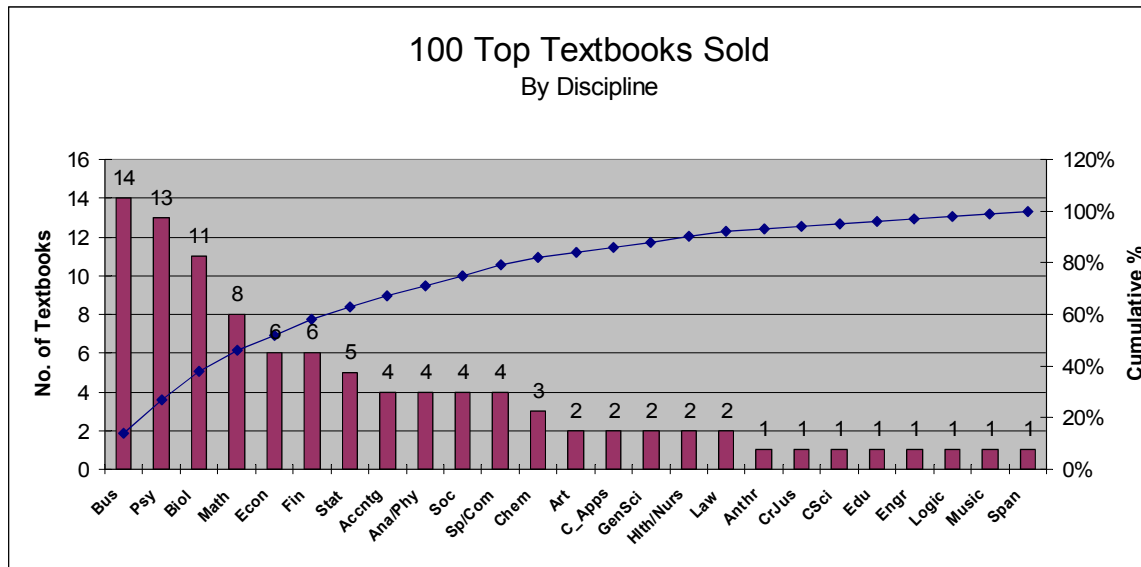


Figure 1. No. of Textbooks by Academic Discipline

Price Analysis

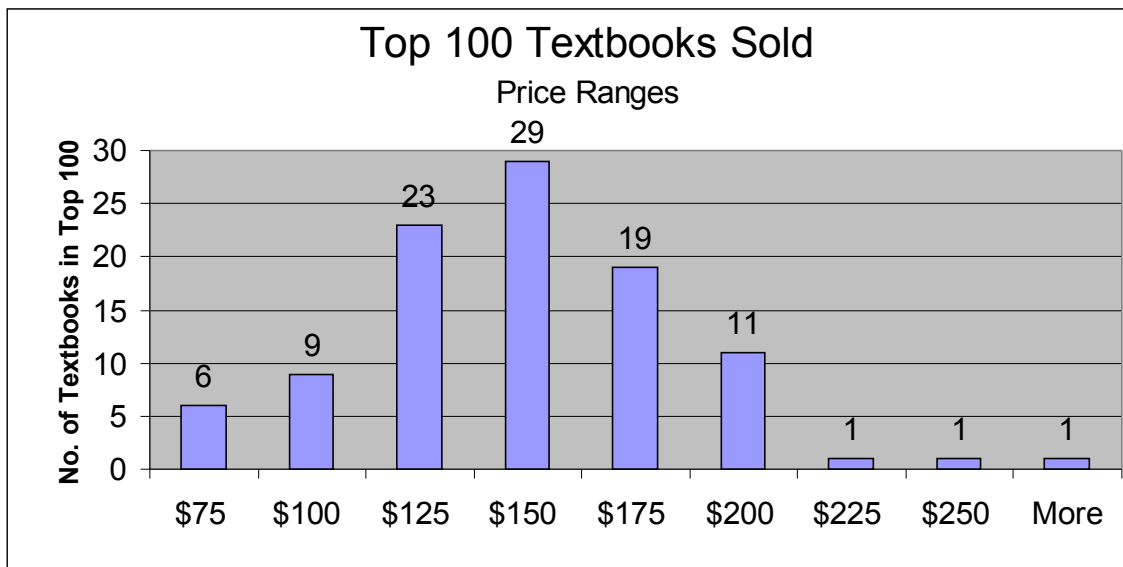


Figure 2: Price Ranges



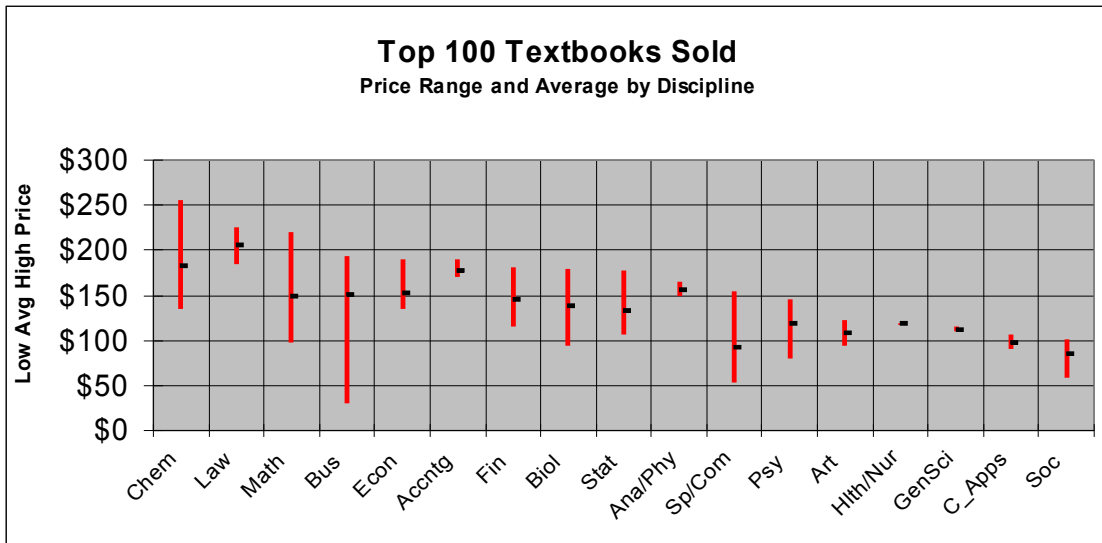


Figure 3. Price Range and Average by Discipline

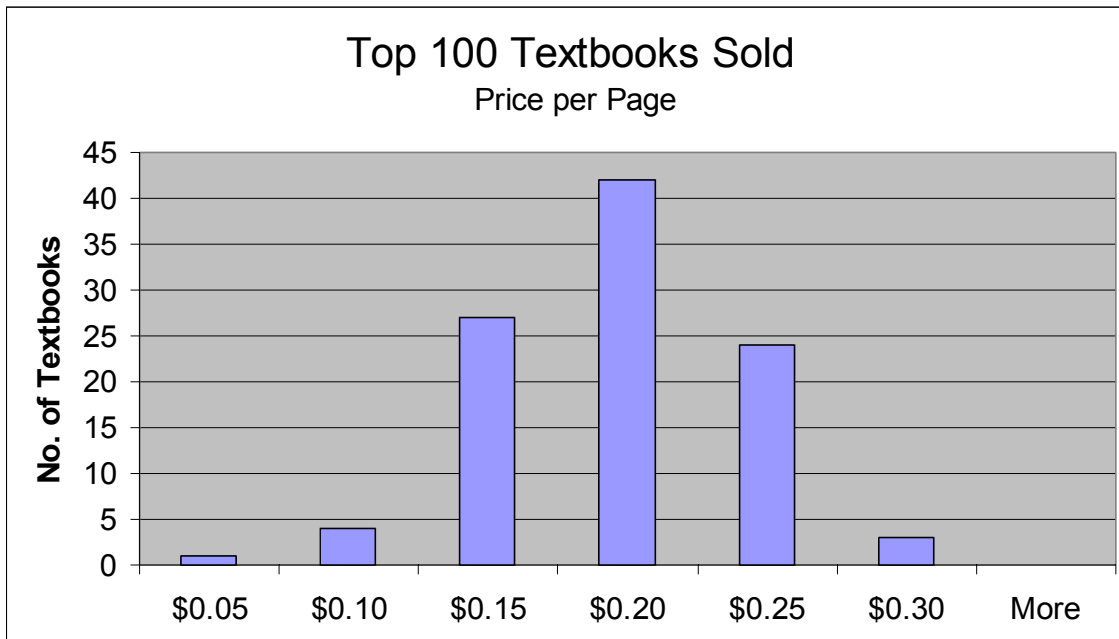


Figure 4. Price per Page

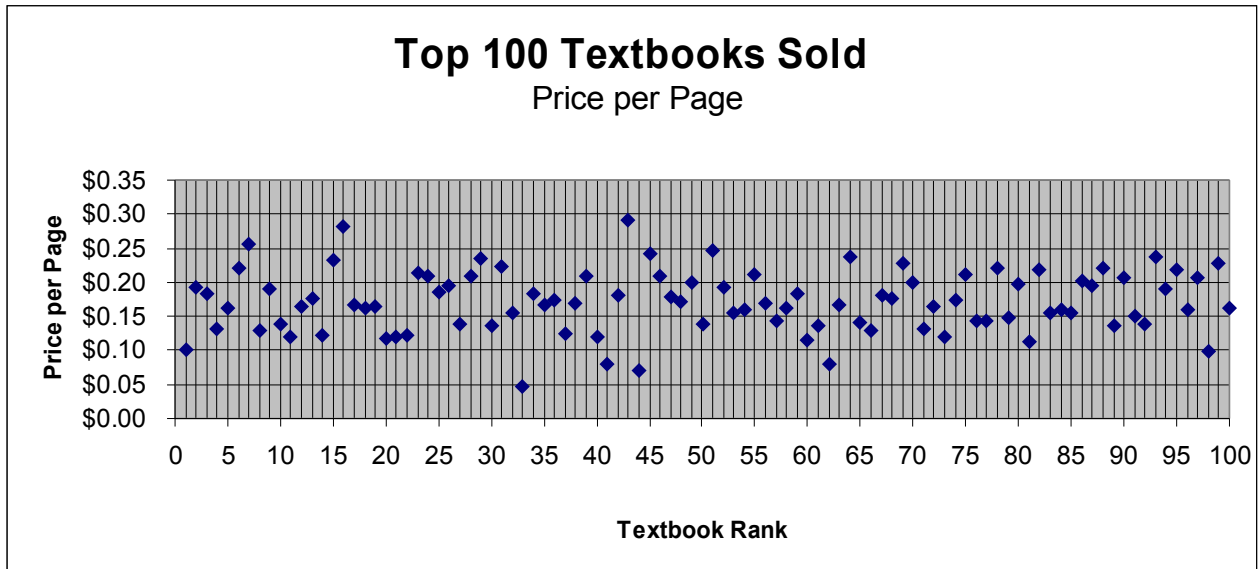


Figure 5. Price per Page Range

Physical Characteristics

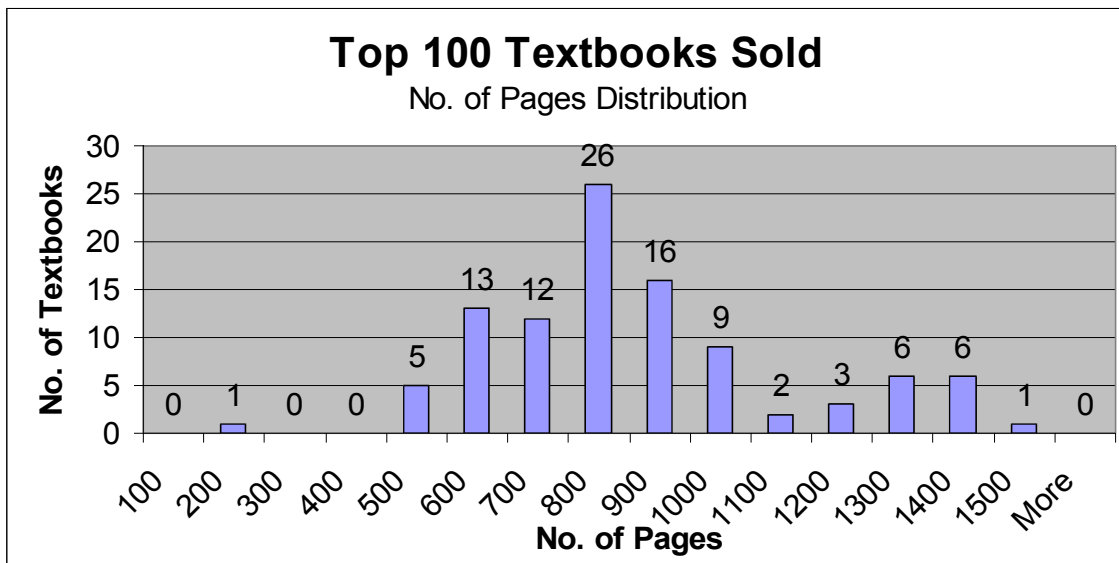


Figure 6. No. of Pages



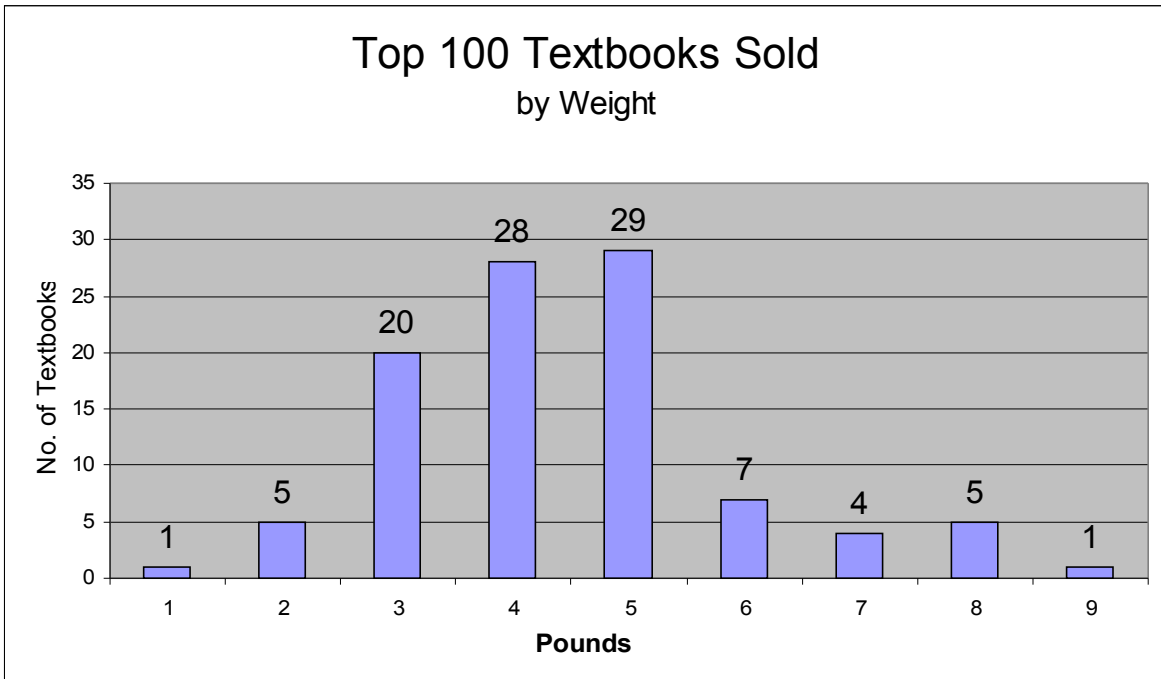


Figure 7. Textbook Weight

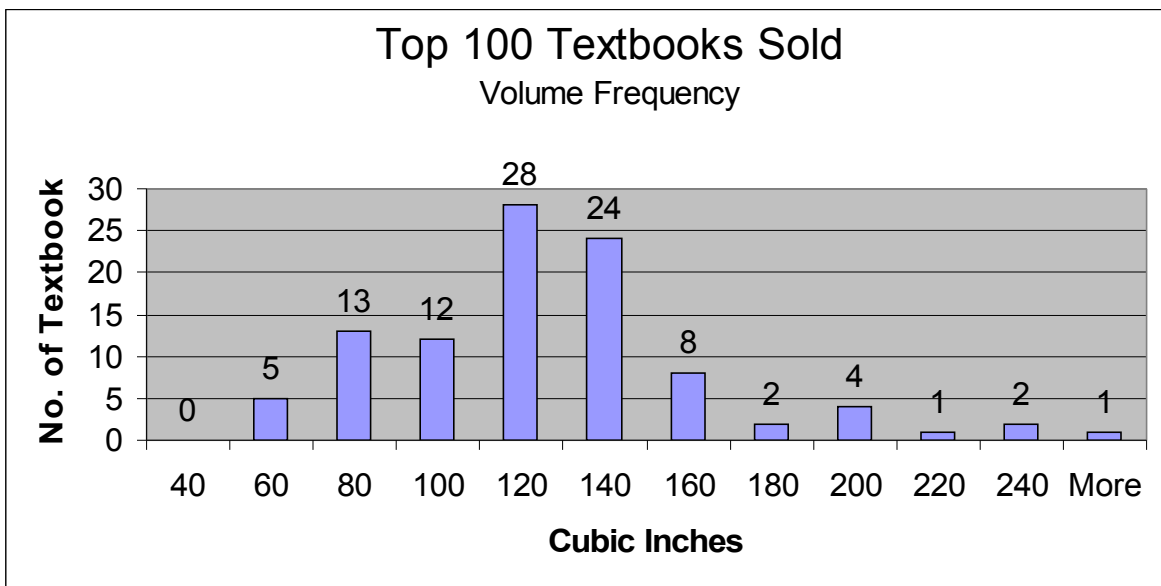


Figure 8. Textbook Volume

The Publishers

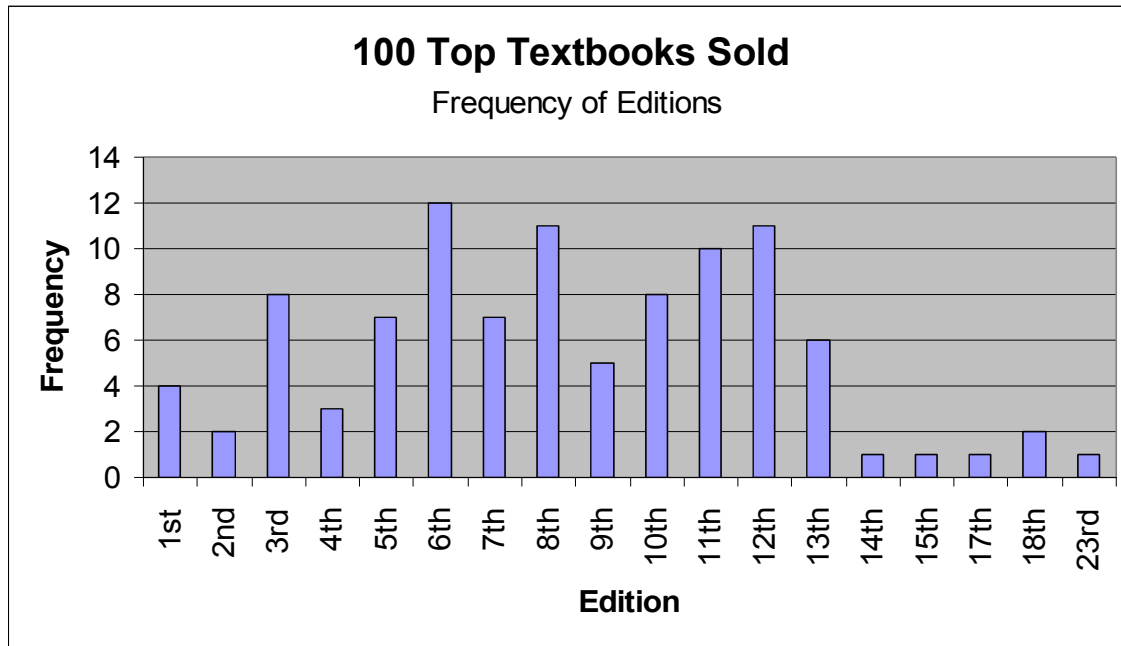


Figure 9. Frequency of Editions

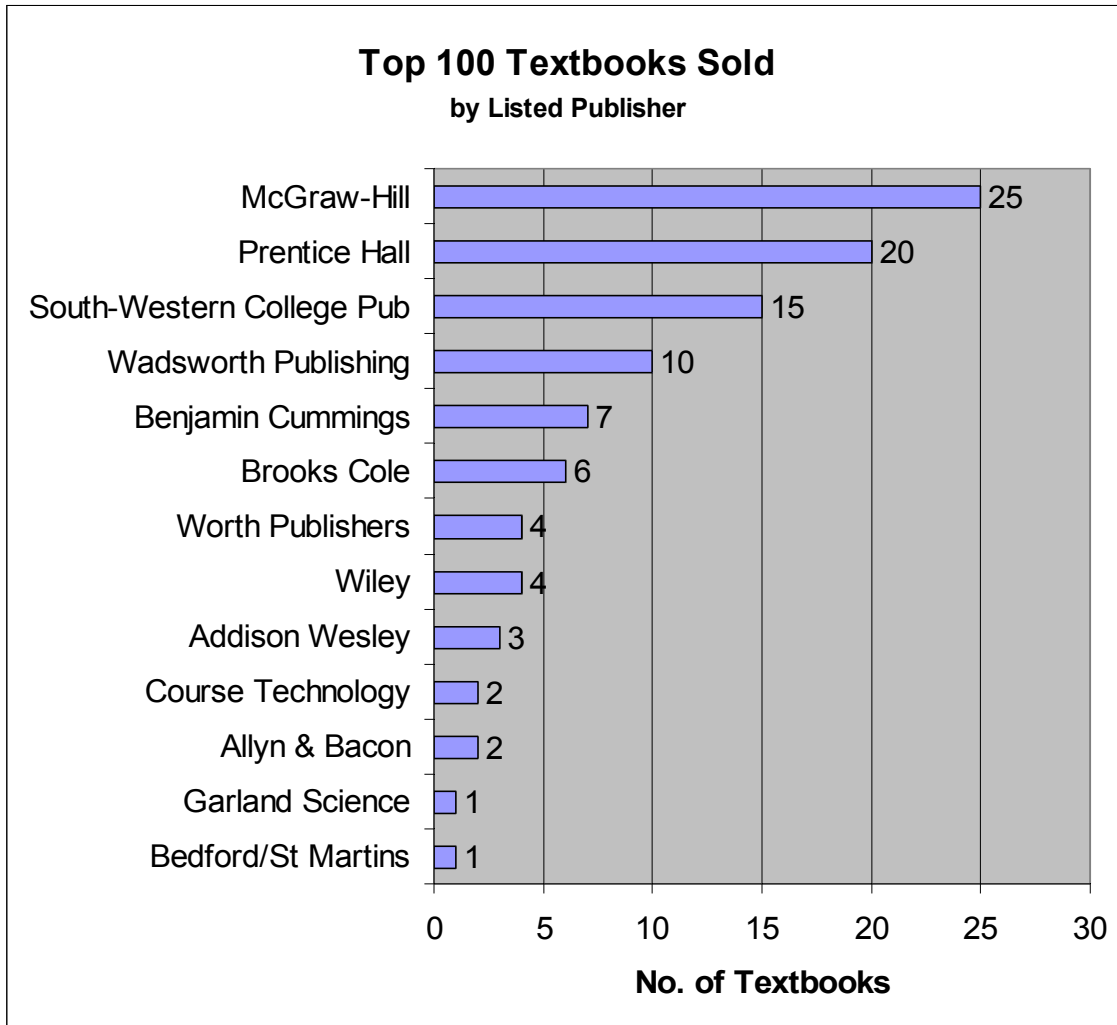


Figure 10. No. of Textbooks by Listed Publisher

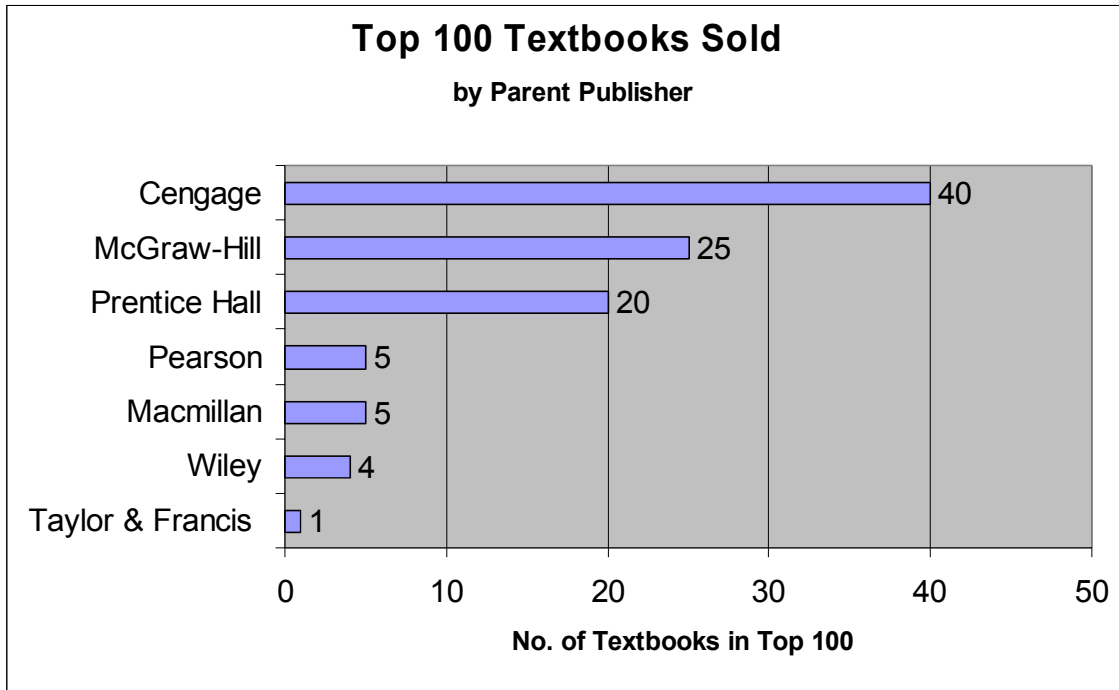


Figure 11. No. of Textbooks by Parent Publisher

Spring 2010 Top Selling Textbooks On Amazon.com								
Discipline	Avg Price	Avg Range	Var %	Frq	Avg Price/Pg	Avg Price/in ³	Avg Vol (in ³)	Avg # of pages
Acctng	\$177	\$19	11%	4	\$0.16	\$1.16	157	1,140
Ana/Phy	\$156	\$15	10%	4	\$0.14	\$1.05	163	1,141
Anthr	\$133	\$0	0%	1	\$0.29	\$2.52	53	456
Art	\$108	\$29	31%	2	\$0.15	\$0.82	131	712
Biol	\$139	\$84	88%	11	\$0.14	\$1.04	146	1,006
Bus	\$150	\$162	525%	14	\$0.20	\$1.36	113	782
C Apps	\$98	\$17	19%	2	\$0.09	\$0.69	148	1,116
Chem	\$183	\$121	90%	3	\$0.17	\$1.08	174	1,069
CrJus	\$107	\$0	0%	1	\$0.23	\$1.68	64	471
CSci	\$148	\$0	0%	1	\$0.22	\$1.50	99	672
Econ	\$152	\$55	41%	6	\$0.22	\$1.72	93	699
Edu	\$114	\$0	0%	1	\$0.20	\$1.39	82	576
Engr	\$195	\$0	0%	1	\$0.21	\$1.38	141	944
Fin	\$146	\$65	56%	6	\$0.18	\$1.37	107	800
GenSci	\$112	\$5	5%	2	\$0.15	\$1.04	109	744
Hlth/Nurs	\$118	\$0	0%	2	\$0.15	\$0.92	129	784
Law	\$205	\$41	22%	2	\$0.19	\$1.79	115	1,136
Logic	\$119	\$0	0%	1	\$0.17	\$1.37	87	720
Math	\$150	\$123	127%	8	\$0.17	\$1.55	104	895
Music	\$65	\$0	0%	1	\$0.14	\$1.39	47	480
Psy	\$119	\$67	85%	13	\$0.17	\$1.12	112	717
Soc	\$85	\$43	73%	4	\$0.16	\$1.06	84	577
Sp/Com	\$92	\$100	186%	4	\$0.15	\$1.10	88	632
Span	\$137	\$0	0%	1	\$0.20	\$1.52	90	688
Stat	\$133	\$71	67%	5	\$0.16	\$1.32	108	827
n=100	Price	Avg Range	Var %	Frq	Avg Price/Pg	Avg Price/in³	Avg Vol (in³)	Avg # of pages
Avg	\$134	41	30%	4	\$0.18	\$1.32	110	791
Max	\$205			14	\$0.29	\$2.52	174	1,141
Min	\$65			1	\$0.09	\$0.69	47	456
Std Dev	\$34			4	\$0.04	\$0.37	33	215
Range	\$140			9	\$0.13	\$1.20	66	313
Median	\$133			2	\$0.17	\$1.36	108	744

Table 1. Textbook Data by Discipline



Preliminary Conclusions

1. Textbook publishing is a highly concentrated industry. *(See Figure 11. No. of Textbooks by Parent Publisher)*
2. Textbooks have too many pages. There is probably no course that every used everything in a textbook. *(See Figure 6. No. of Pages)*
3. Textbook prices are highly correlated to the number of pages, and there is no reason for that that we can see. The price per page is within a pretty narrow range. That range is low enough to make copying, especially color copying, unattractive. *(See Figure 5. Price per Page)*
4. Prices within disciplines vary considerably, meaning that textbook adopters can find less expensive textbooks for their classes if they look a bit more carefully. *(See Figure 3. Price Range and Average by Discipline)*
5. Prices can become reasonable if publishers become more efficient. That will only happen if they face more price competition.
6. Much more of the price (and recognition, promotion, tenure,) of textbooks needs to go to the authors to maintain a healthy level of academic competition and advancement in each field.
7. The open educational resource movement is gaining significant funding. Couple that with proliferation of very inexpensive print-on-demand services and there is no longer a need to depend upon traditional publishing houses to provide quality content classrooms.