

Free Knowledge: Changing the Textbook Model

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UNIVERSITY OF HARTFORD

COLLEGE OF ARTS AND SCIENCES

At the University of Hartford we have used “open source” texts for introductory physics.

- Legal to photocopy, print, and distribute
We must keep author identification.
- Legal to modify the book.
Modified version must also be open source.

What led us to this decision?

Textbook Costs

What is the University of Hartford average?

Admissions FAQ: About \$1000 per year (\$950 in 2007).

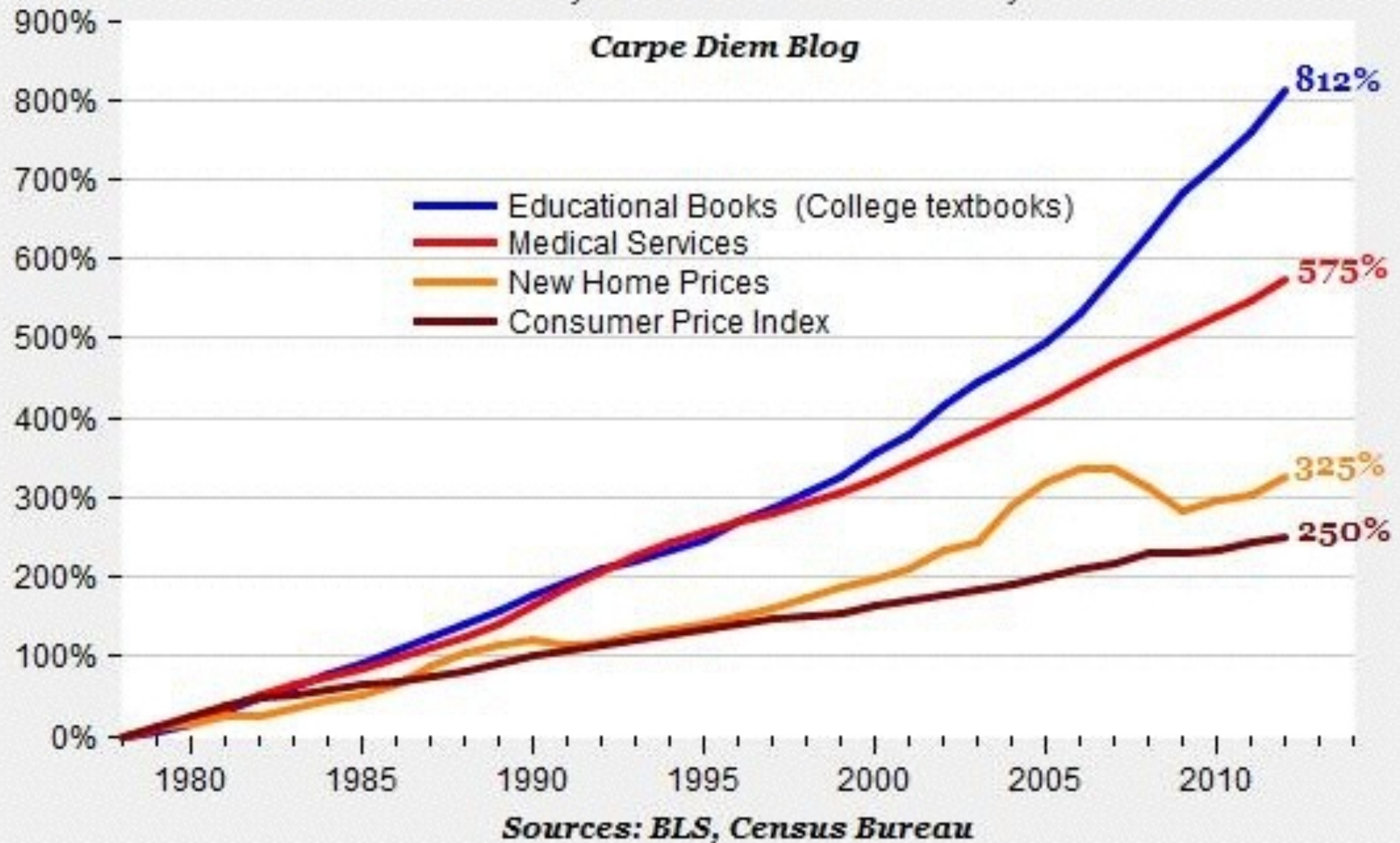
What is the national average?

Student PIRGs: About \$1200 per year (\$900 in 2007).

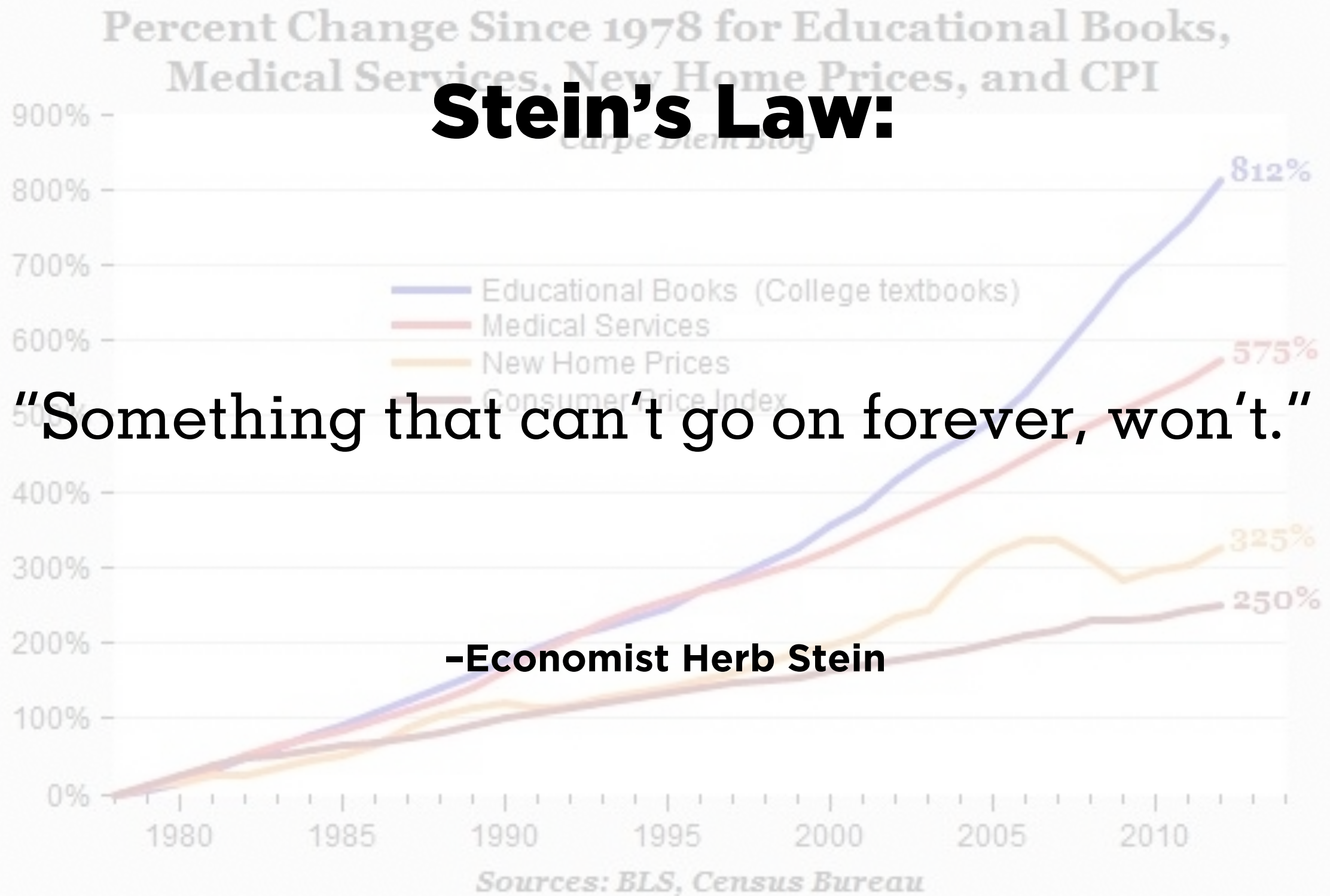
The rate of textbook inflation is about 4 times the rest of the economy, including “regular” books.

According to the GAO, prices rose 82% between 2002 and 2013.

Percent Change Since 1978 for Educational Books, Medical Services, New Home Prices, and CPI



Stein's Law:



“Something that can't go on forever, won't.”

-Economist Herb Stein

This affects whether students use the book.

- In a poll 65 % said they had decided against buying a textbook because it was too expensive.
- Nearly half (48%) said the cost of books had an impact on how many or which classes they took.
- Of the students who had skipped buying a required book, 94% said they were concerned that doing this would hurt their grade in that course

Source: PIRG: *Fixing the Broken Textbook Market*. (2014)



Practices that affect book prices:

- New Editions every 2-3 years (12% jumps)
- Bundling with CDs, online licenses, etc.
- Additional instructor's materials
- Pricing by country (2007 values):
Pearson's *Calculus* was \$100 in US, \$38 overseas.
Freeman's *Chemical Principles* was \$185, \$88.

New editions hurt the used book market.

Once a new edition comes out, the bookstore will not carry the old edition.

The new edition is rarely justified.

The new edition scrambles problems.

Fundamentals of Physics: 1960, 1986, 1988, 1992,...
We are now at the 9th Edition for \$208 on Amazon.

Bundling forces students to pay more for access.

If a professor chooses a bundled book, it comes with other materials, most often a license or access code.

(Now our *Fundamentals of Physics* is up to \$300.)

The license is non-transferable and expires.

This means you have to pay again if you retake the course or buy a used book.

Providing instructors' materials attracts professors, but students end up paying for them.

Programmers and designers don't work for free.

To save money, publishers often share resources across books, so that material isn't likely to be specific to the book you are using.

Different prices for identical texts in different countries is not explained by supply-side market forces.

In the United States the textbook is an integral part of college education. In most courses instruction centers around a single textbook that contains most of the material, as well as 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.

Cabolis, et al.

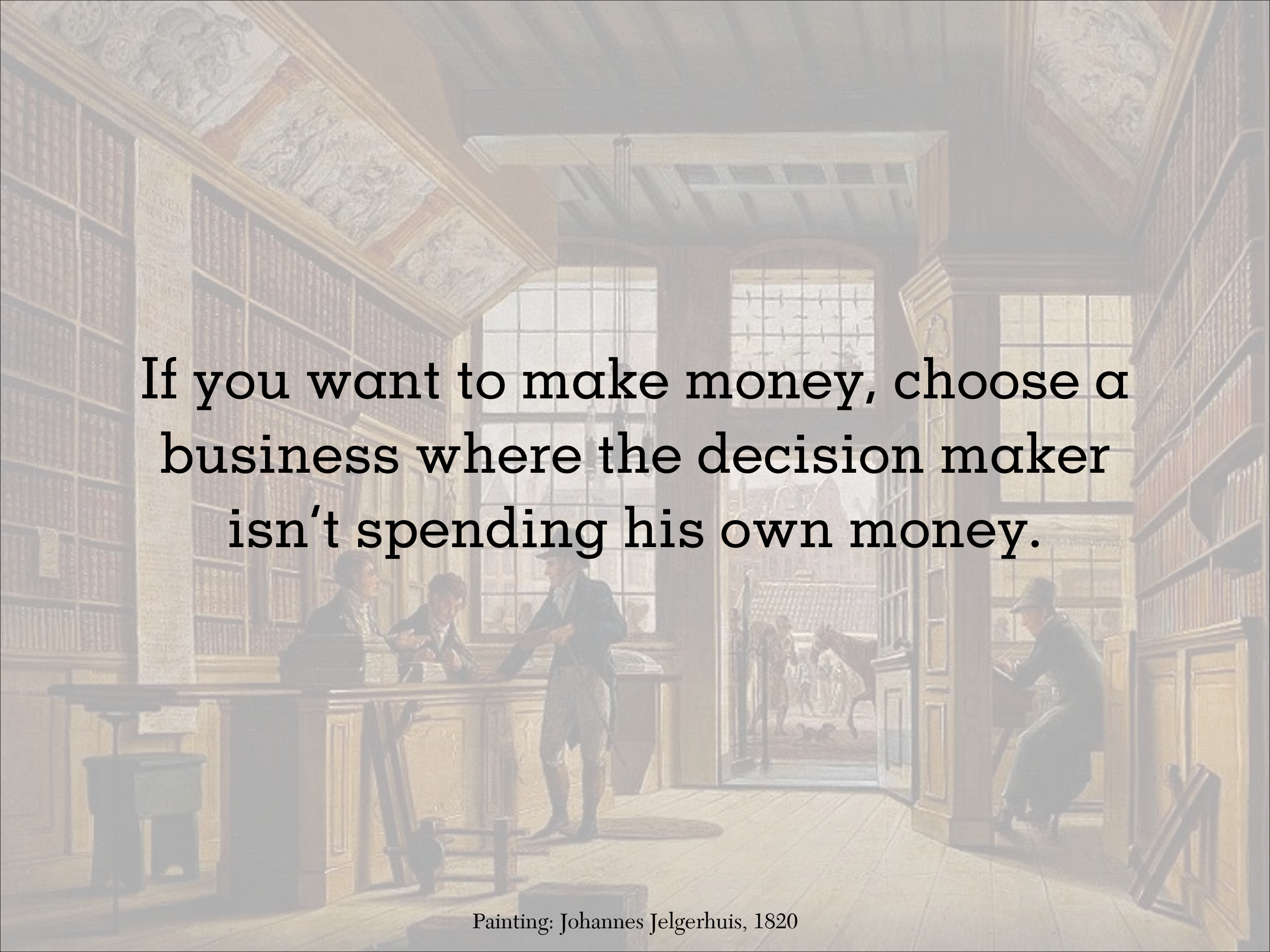
“A Textbook Example of International Price Discrimination”

Economics Letters 95.1 (2007): 91-95

Supreme Court Case: Kirtsaeng v. John Wiley & Sons

March 19, 2013

In a 6-3 decision, the Supreme Court ruled that books purchased legally outside the US can be resold in the US without violating copyright.

The background is a painting of a grand, multi-story library or study. The room is filled with tall wooden bookshelves reaching up to the ceiling, which are filled with books. The ceiling itself is ornate, with decorative moldings and painted panels. In the center, a large arched doorway is open, revealing a courtyard outside where a dog is visible. Inside the room, several people are engaged in study or work. On the left, two men are seated at a long wooden table, looking at papers. Another man stands near the center doorway, holding a book. On the right, a man is seated on a bench, writing or reading. The floor is made of light-colored wood. The overall atmosphere is one of quiet intellectual pursuit.

If you want to make money, choose a business where the decision maker isn't spending his own money.

Painting: Johannes Jelgerhuis, 1820

The Market Conditions are Changing.

- Book publishers are protecting their share with new editions and “everything to everyone” texts.
- Authors still get very little compensation. They are doing an end-run around publishers.
- Professors are now using third parties to get information.
- Students are used to comparing and adapting.

"When I look at a syllabus and it says, 'required text,' I think in my head, *Oh, that's adorable.*"

**- Student Johnny Lazzarini, Foothill College
"Students Get Savvier About Textbook Buying"
Chronicle of Higher Education, January 27, 2013**



Students also have a different view of copyright.

Students downloading course materials from an unauthorized website:

2010: 20%

2013: 31%

Students photocopying chapters from other people's books:

2010: 21%

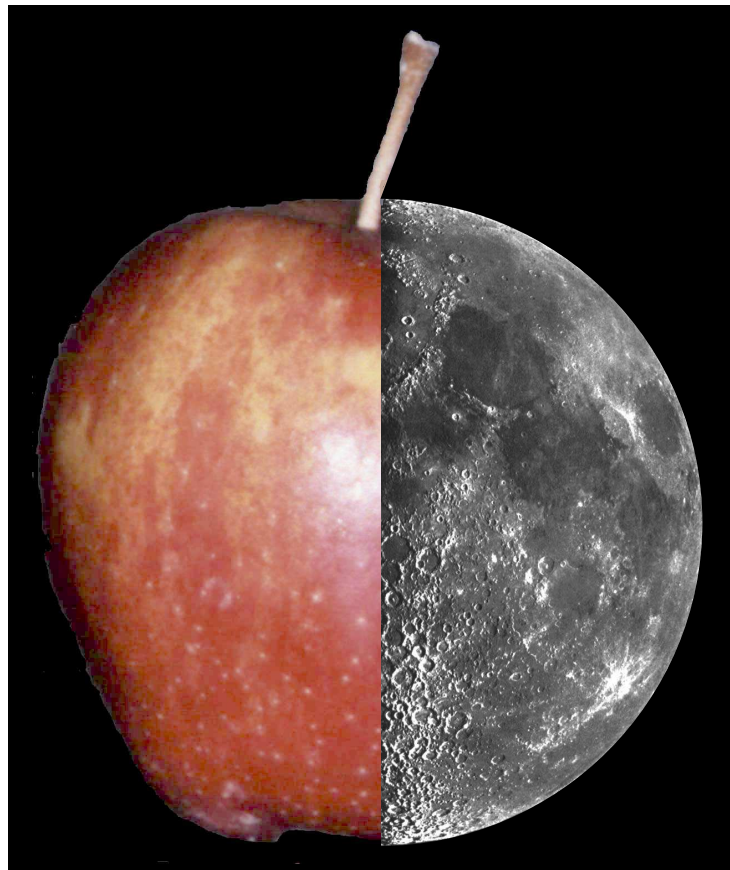
2013: 31%

Many science students don't read the book.

- They attend lecture and take notes.
- If they can complete the homework, they don't read the chapter.
- If they have difficulty with the homework, they skim the chapter for similar examples.

Newtonian Physics

Benjamin Crowell



Book 1 in the Light and Matter series of free introductory physics textbooks
www.lightandmatter.com

In 2007 we tried the
Light and Matter
series by
Ben Crowell.

It's "pay for paper:"
A PDF was free.
The paperback
volumes were
\$18 for the first
semester
and \$22 for the
second.

The copyright is Creative Commons.



The CC is based on traditional copyright.
It protects the author's rights
but still allows others to use your work.

www.creativecommons.org



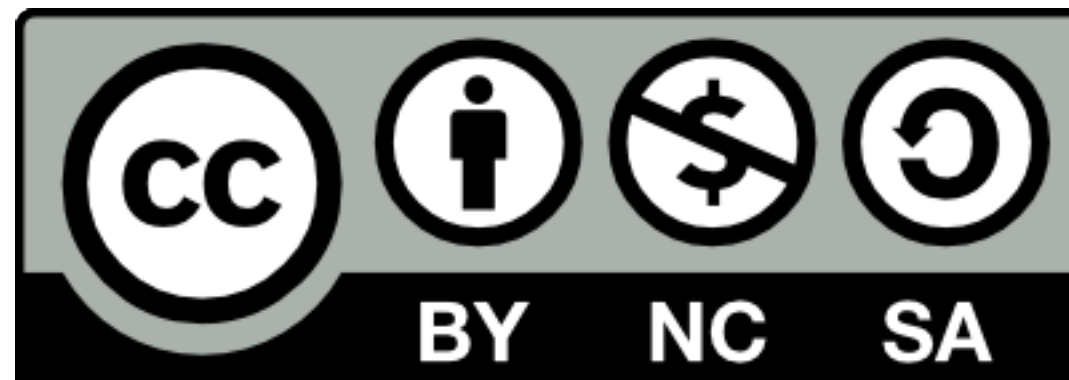
Attribution

No Derivative



ShareAlike

NonCommercial



Crowell uses lulu.com, an on-demand publisher.

The publisher has a print-ready master
copy and prints them as needed.

This means there is no stock overhead.
But multiple copies are cheaper.

It also means you have a longer delivery time.
(Usually about a week.)

We changed our expectation for the role of the book.

- The *Light and Matter* text is heavy on narrative.
- Students read topics before the lecture.
- Daily quizzes on reading.
- Lecturer gives examples and fills in gaps.

The first question on every quiz is a question written by the student about the material.

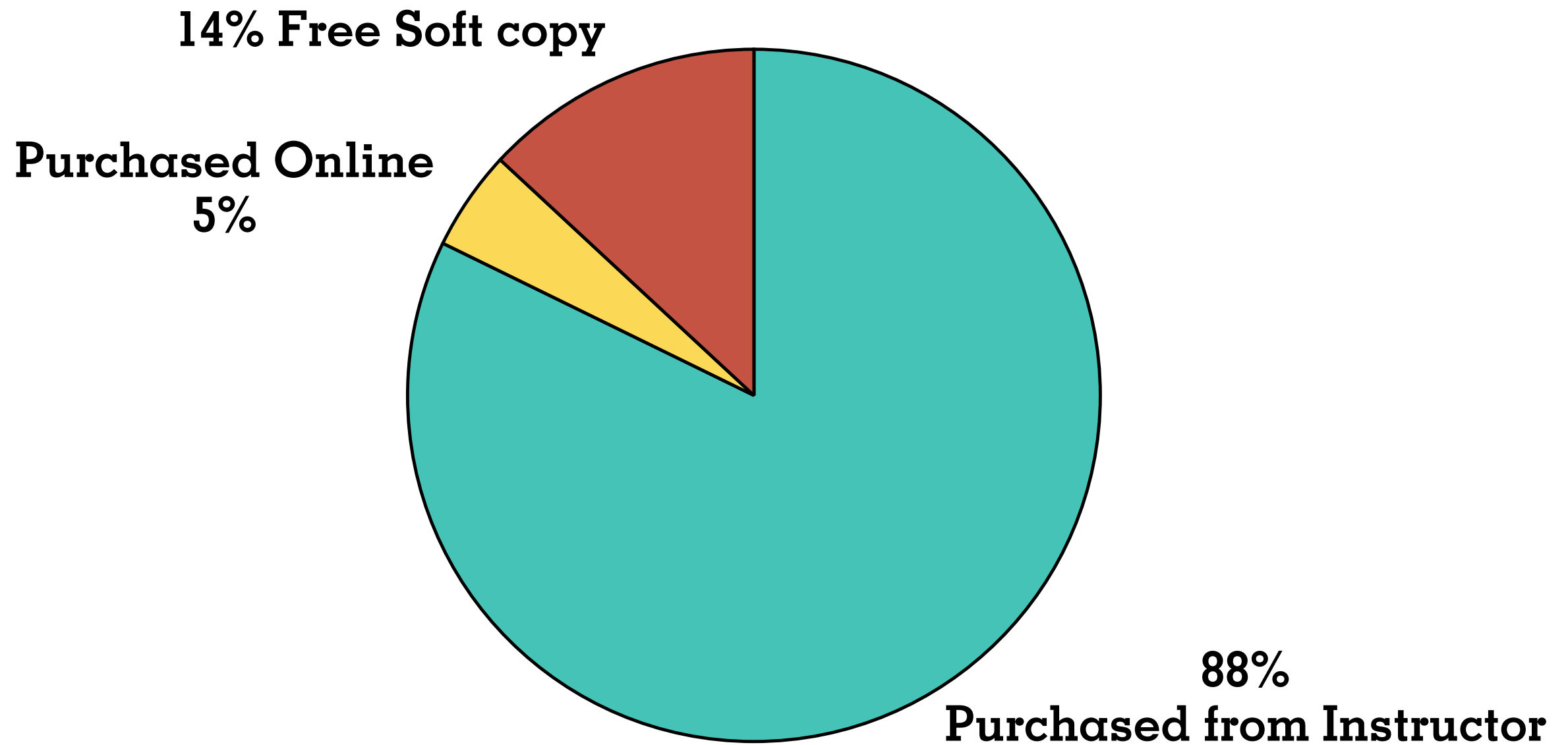
Common questions and issues help the lecturer address class-wide issues and suggest changes for the next edition.

If the student doesn't have any questions, then he or she must submit a photocopy of their notes for the chapter.

Ways you can get the textbook:

- (1) Buy dead tree copies from your instructor (*\$18*).
- (2) Buy dead tree copies from another student (*Variable*).
- (3) Go to www.lulu.com/lulucrowell07 and do one of the following:
 - Download PDF copies and read them on your computer or tablet. (*Free*)
 - Order dead tree copies of both books online. (*\$17.88 plus S&H*)
 - Download PDF copies and print them out yourself. (*Variable*)

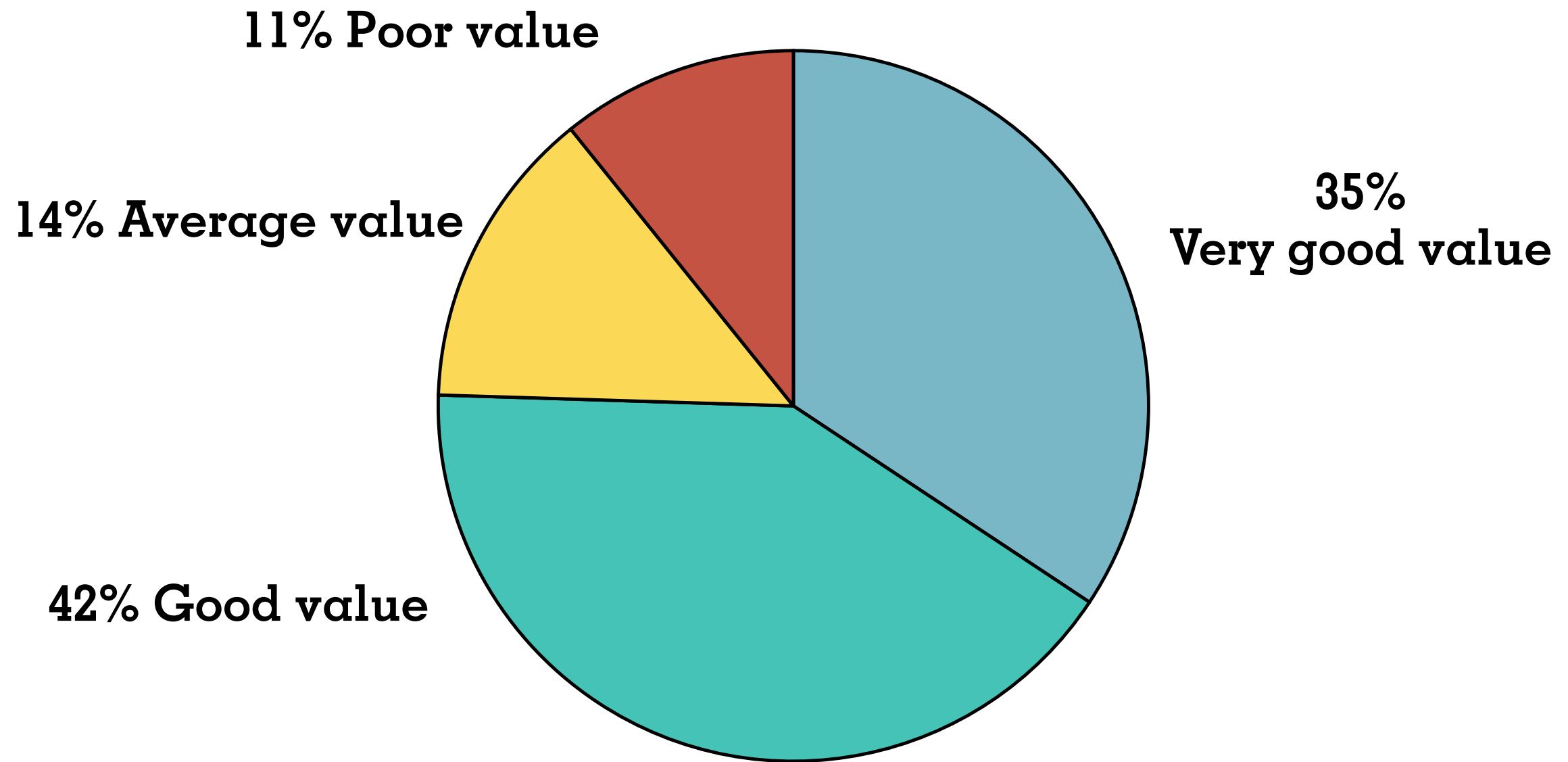
(Be forewarned that the University does keep track of printing in computer labs and will charge you per-page -- this will most likely be the most expensive option!)



72% preferred having a hardcopy to online only.

**91% did not mind black and white paperback
if it reduces cost.**

Source: Survey Spring 2007, 49 students



79% considered the book "easy to understand."

72% read the book regularly.

67% planned to keep the book for reference.

Source: Survey Spring 2007, 49 students

Someone Still Needs to Write the Textbook!

**Some archives exist;
otherwise someone has to write the material.**

- Individual authors
- Groups like OpenStax and FlatWorld Knowledge
- Collaborative groups (Professors? Students?)

The Cathedral and the Bazaar by Eric Raymond
(Free online, purchased printed edition.)

The pay-for-paper model only charges for the printed book.



- College Physics (released June 2012)
- Introduction to Sociology (released June 2012)
- Biology (released April 2013)
- Concepts of Biology (released April 2013)
- Anatomy and Physiology (released June 2013)

The pay-for-paper model only charges for the printed book.



Keep in mind that the established publishers have sued some companies.

In December 2013, Boundless settled a lawsuit with Pearson Education, Cengage Learning, and McMillian Higher Education.




The copyright issue was "text book replacement."

There are a number of advantages to self-publishing.

- Less market pressure: you can fill your niche.
- More control: you decide on the appearance and price of your book.
- Flexibility: you can update the text or keep the same edition for a decade.
- Marketing: you might find the right niche, and the price may cause other schools to consider it.

You should be aware of what you are giving up.

- Help: you need to find (and pay) your own editor
 - Feedback: you to find your own reviewers
 - Marketing: you need to create your own plan
 - Contacts: you need to find the potential adopters
 - Legal help: you are on your own
- 


The “normal” process for writing a textbook.

- Outline: what will your book be like?
- Proposal: why is your text needed?
- Advance: money to write the book
- Editing: work with an editor to finalize

The “normal” process for writing a textbook.

- Chapter reviews: people to review chapters, give feedback
- Test draft: use a draft version in selected classes
- Publication: you have a book!
- Royalties: only after advance is paid back


I used a sabbatical in lieu of a book advance.

- Outline: what will your book be like?
 - Proposal: sabbatical proposal mirrors book proposal
 - Advance: sabbatical is money and time to write the book
 - Editing: I arranged for editors
- 

I used a sabbatical in lieu of a book advance.

- Chapter reviews: I asked people to review chapters, give feedback
- Test draft: I used a draft version in selected classes
- Publication: I have a book!
- Royalties: immediate but I already paid for editors, *etc.*

The timeline for the actual work is about three years.

- Fall 2012: Sabbatical application
 - Fall 2013: pull together a working draft
 - Spring 2014: use draft for class, get feedback
 - Summer 2014: modify and update
 - Fall 2014: finalize first edition, put together teachers' materials
 - Spring 2015: use first edition
- 

So where are we going?

Students need a compact and accessible source of valid information. A textbook is only one way to provide that.

As students (and professors) become more comfortable with other formats, more classes will use combinations of sources.



So where are we going?

- Pay for paper: free online but cost for hard copy
- Hypertext: browser-based materials
- Lecturer: course notes supplement open source
- Wikis: the class collaborates on a book
- Flex book: building a book on-demand



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airry.hartford.edu/~jmcdonald/talks/textbook2014.pdf