

# Electronic Commerce

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## Abstract

Intellectual property and the Internet.

# Amazon “one-click” patent

- What is (technically) special about the “one-click” method?
- What does this imply about Amazon customers (compare to the Econ 100A consumer model)?
- What is the business model implied? (Only part of Amazon’s whole business model.)
  - Can you think of other aspects of Amazon’s business model that may similarly be driven by this model of the consumer?

# Amazon “one-click” patent

- The special feature of the “one-click” method is that Amazon keeps the customer’s account online and allows the customer to log into it. This means that the customer needs not reenter that information or confirm it, making it possible to point at an item and buy it by clicking on it.
- What do we learn about Amazon customers?
  - First, customers value convenience. This is not surprising based on the consumer model; time and attention are valuable resources.
  - Second, recall the book’s comment that Amazon noticed that many customers would add items to their cart, but then not buy. Amazon hoped to “capture” many of those “impulse”

purchases by making it harder to cancel them than to let them go through. This is hard to reconcile with the conventional consumer model. **Point:** economics is useful to managers only partly because it helps predict market phenomena (more) accurately. Note that by finding violations of the usual models, business models that generate economic profits (quasi-rents) can be constructed.

- One aspect of Amazon's business model is to provide maximum convenience to the consumer. This not only is a competitive advantage, but also helps capture purchases that are profitable to Amazon even the the consumer isn't that excited about them.
  - Another aspect of this model is that Amazon is always seeking ways to decrease the time between purchase and gratification.

# Priceline's “reverse auction” patent

- What is (technically) special about the “reverse auction” method?
- What does this imply about Priceline customers (compare to the Econ 100A consumer model)?
- What is the business model implied?
  - Can you think of other aspects of Priceline's business model that may similarly be driven by this model of the consumer?

# Priceline's “reverse auction” patent

- In a “reverse auction,” sellers post prices secretly and buyers try to guess them. This is risky: there may be no seller willing to meet your price, and you may “dislike” the winning seller. What made it patentable is the connection of the reverse auction idea to networked databases.
- Priceline customers can be modeled as highly price-sensitive and close to risk-neutral.
- Priceline is basically a market-maker, matching unused capacity to demand. We know about market makers.

# Mercata “group aggregation” patent

- What is (technically) special about the “group aggregation” method?
- What does this imply about Mercata customers (compare to the Econ 100A consumer model)?
- What is the business model implied? (Only part of Mercata’s whole business model.)
  - Can you think of other aspects of Mercata’s business model that may similarly be driven by this model of the consumer?

# Mercata “group aggregation” patent

- The “group aggregation” method is just an *ad hoc* co-op. Again, patentability derives from combination with Internet login to a credit card account.
- The rest is just like Priceline.
- Does “just add login-to-a-credit-card-linked-account” really justify a patent? Probably not.

# Other important software patents

- RSA “public-key” encryption: the Rivest-Shamir-Adelman method provides a way to publish a code that is nonetheless (practically) unbreakable
  - Diffie-Hellman key exchange – anonymous encryption
  - Application: PGP secure mail and files
  - Application: SSL secure Internet communication
- Lev-Zimpel compression (GIF images)

# Public value of e-commerce patents

- Book is very negative, following Lessig. Based on the “just-add-Internet” is tired and obvious argument.
  - But we can (and have!) tighten criteria for novelty and unobviousness.
- But what about inventors? There is argument that creators create because that’s what they love to do. However, isn’t it “just” to reward them for their social contribution?
- What about less-creative investors (*i.e.*, “venture capitalists”)? Note that if there *were no patents*, the VCs have no assets in such firms!
  - VCs pay for the “D” half of “R&D” as well as for “marketing”.

- How should economics analysis for guiding public policy proceed?
  - Integrate cost-benefit analysis with social surplus analysis
- Variables
  - Application fee
  - Issuance fee (renewal fees, too)
  - Royalty to government
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# Homework grades and midterm exam

- Homework grades for *Homework #1* will be distributed by email to your @ucsc.edu address. (Exchange students and others not on the official roster will get information at the address from which homework was submitted.)
- The first midterm will be *next Thursday, May 1*.
- Tuesday's class will be a regular lecture.
- Review sessions will be held in section. You *may* attend a section you are not registered for, but you should *check with the responsible TA first*. This is especially important for the Monday (139A-01A) section, which is maxed out.
- Text coverage is approximately Ch. 1–9 of the book and lecture notes.

- A sample exam (or reasonable facsimile) will be posted on Saturday evening.

# Napster

- Use of P2P technology for violating copyright.
- P2P is clearly legal under the *Betamax* decision.
- That doesn't make copyright violation via P2P legal.
- Napster got nabbed for “aiding and abetting” by providing an index of illegally available tracks.
- RIAA won the battle, but they need to rethink the strategy.
  - Technical means may be protected by DMCA, but they're too easy to break. Probably can't win.
  - High quality bootleg audio-to-digital will always be available.

# Webcasters

- Why not treat them as over-the-air radio play?
- History shows similar behavior regarding each technological improvement in communication: printing, lending libraries, ...

# DeCSS

- Code to descramble video encryption so that open source software users could view on their systems.
- Enables copyright violation.
- Won the suit, but freedom of speech means the code can be published.
- Again, the copyright owners need to find new business models.

# Barriers to entry

- In competitive industries (including *monopolistic competition*), there are no barriers to entry
  - Concentration dissipates
  - This leads to the famous conclusion about “zero economic profits” (hereafter, simply “profits”)
- If profits persist over time, we conclude that entry barriers are creating *market power*, *i.e.*, monopoly or oligopoly, and protecting incumbents from competition
- Nonetheless, price competition (*Bertrand model*) can reduce profit to zero. The *Cournot oligopoly model* is usually cited to theoretically justify positive profit.

# Absolute barriers to entry

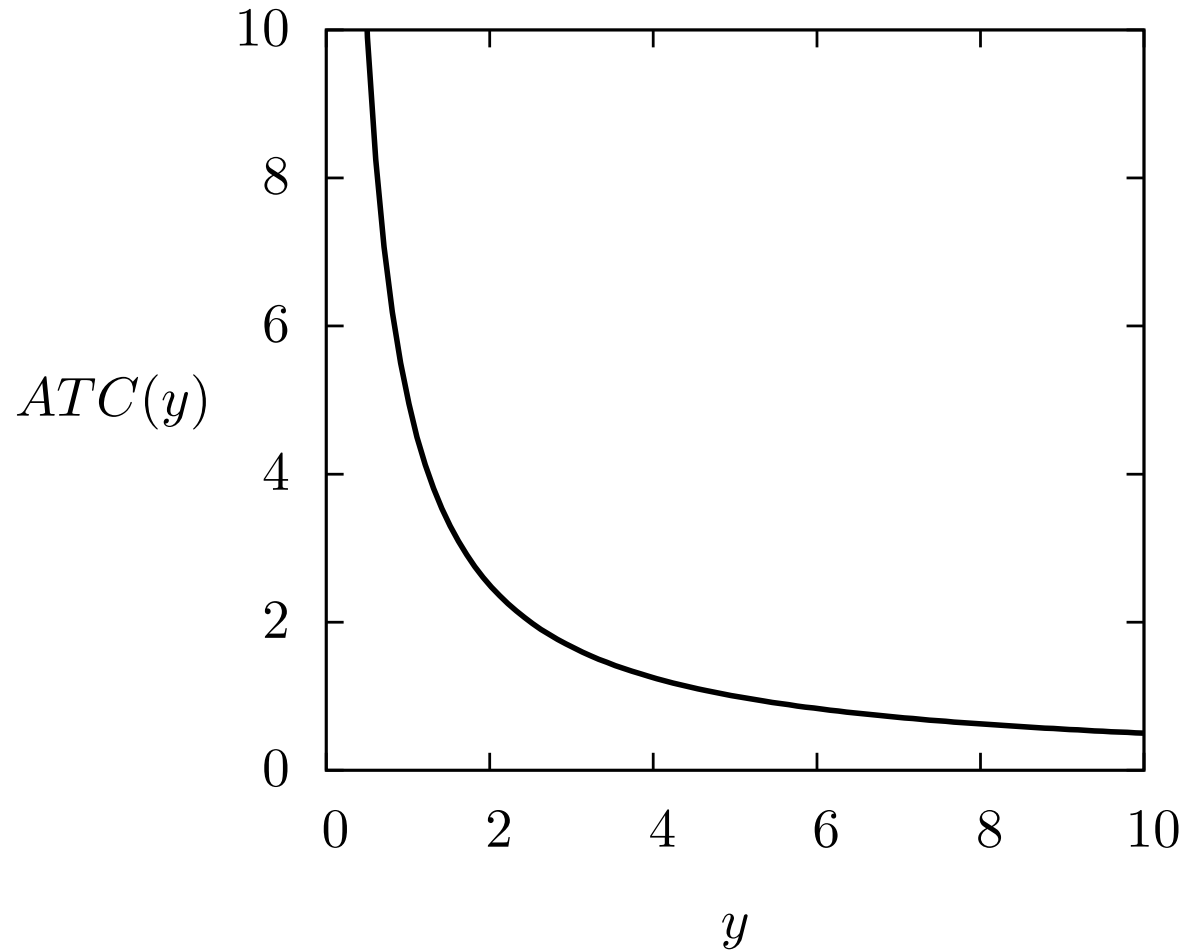
- Possession of a *fixed physical resource* leads to *rents*, as on land
  - Entry must be balanced by exit
- A *government franchise* leads to *quasi-rents*, as in “taxi medallions” licensing of physicians, or patents
- An *absolute cost advantage* may be based on a fixed physical resource (a higher-quality ore deposit in mining), better technology protected either by patent or *trade secret*, or *learning-by-doing*
- *Switching costs*, including *network externalities*

# Learning-by-doing *vs.* economies of scale

- Economy of scale is a static phenomenon, where the *rate* at which you produce makes you more or less efficient
  - A simple example is amortizing a fixed cost *vs.* constant marginal cost implies decreasing average cost
  - An automobile engine has a “sweet spot” where the speed-to-fuel-consumption ratio is highest
- Learning-by-doing is a dynamic phenomenon, where costs decrease based on *experience*, measured by the total output to date.

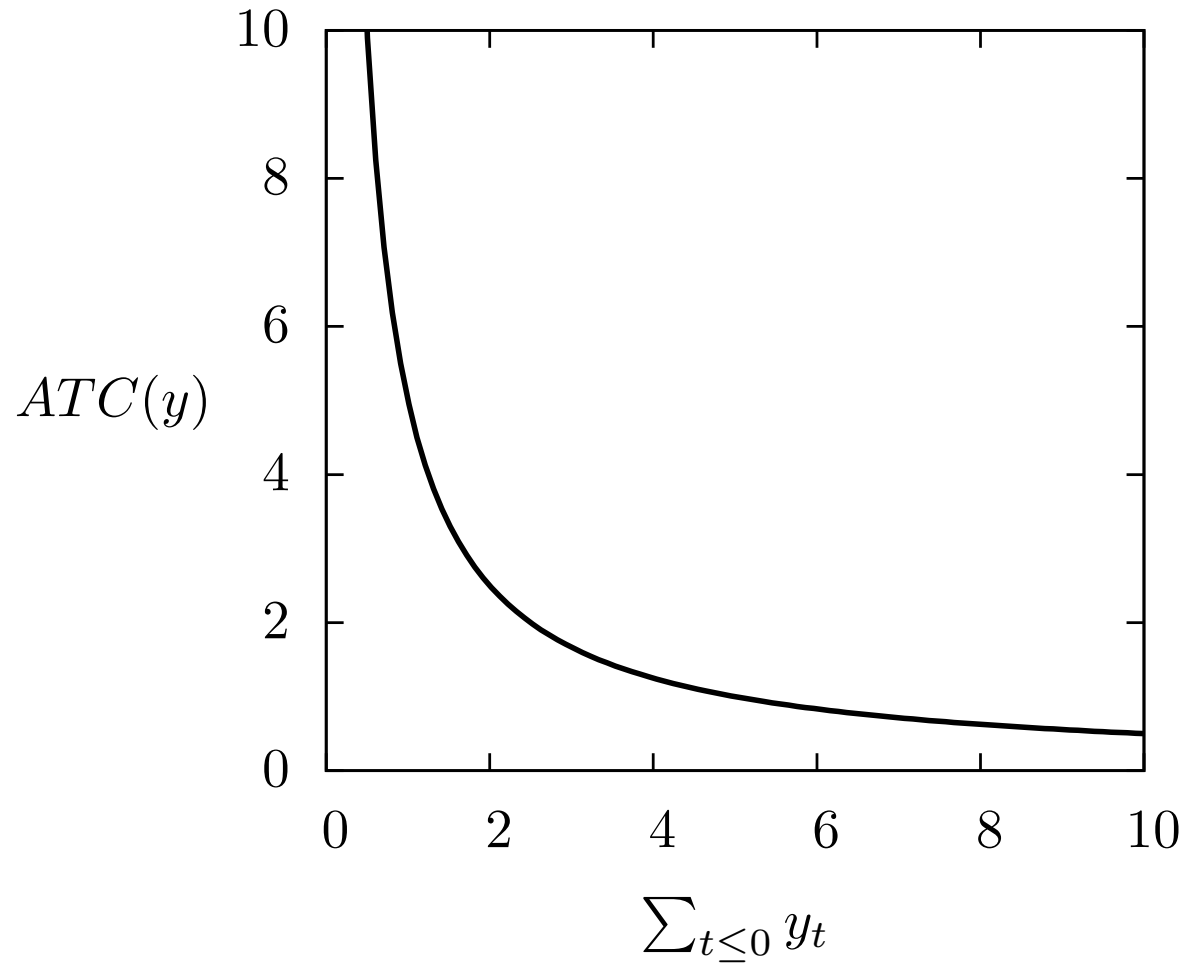
# Economies of scale

Economies of scale  
(or scope) result in  
decreasing average  
costs.



# Learning by doing

Learning by doing  
also generates  
decreasing average  
costs. What's the  
difference?



# Unreliable barriers to entry

- *Strategic behavior*, such as predatory pricing
- *Large capital costs*
- *Product differentiation*, including *brand proliferation*
- *Economies of scale or scope*

These are *unreliable* because they can be wielded by entrants as well as incumbents, leading to phenomena like *serial monopoly* and *disruptive innovation*.