Electronic Commerce

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Economics

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Abstract

Today we look at efficiency and consider a few "ordinary" industries with substantial e-commerce applications.
Brief list of chapters for 2d midterm: 9–13, part of 19, 16, 17, maybe 18.

Resources, not money

- Money can't buy happiness, they say
  - And it doesn't even taste good
- But it can buy sushi
  - And that makes my daughter happy ... until it's gone
- *General equilibrium theory* takes the money out of the economy and looks at how to allocate sushi *etc.* "for the greatest good of the greatest number"
  - With appropriate definitions of "good" and "number"
  - Fundamentally values individual happiness
  - But doesn't know how to measure it!

So why does accounting in money work?

- Market economy
  - Allows individuals to express value as choice
  - Equates money to *personal* marginal value of resources
- Capitalism forces managers to try to increase profit
- Actual economy is more accurate approximation of perfect competition than managers can accurately estimate economic costs

Economic cost

- **Opportunity cost** of resource is **value in best other use**
  - In trade, the resource is money, the opportunity cost is **alternative purchases**
  - In production, the resource is an **input** which could be used in production of **alternative outputs**
  - Allows measurement of **value** in **physical terms** (not financial or "utility")
- Unlike (linear) market, opportunity cost changes with scale (diminishing returns, *etc.*)
- Adjusting quantities leads to equation of opportunity cost "at the margin" so all actual usage is "best" in opportunity cost sense
  - Optimization for individual decision makers (**rationality**)

– Equilibrium for society (**market**)

Efficiency

- **Productive efficiency** is straightforward: minimizing *opportunity cost*
  - equivalent to minimizing monetary cost assuming competitive market pricing of inputs
- **Allocative efficiency** requires *productive efficiency* (efficient allocation of inputs), and in addition *no gains from trade*: there is no rearrangement of the distribution of goods to people that makes *all* of them better off

Efficiency gains through online exchanges

- B2B; unlike eBay *etc.*, these are channels for repeated vendor-customer contact
- Examples (Deak, pp. 257-268)

Implications of e-commerce for efficiency

Nothing special

- **Cost reductions** improve productive efficiency
- **Improved products** improve productive efficiency
- **Improved markets** improve allocative efficiency
- **Structure/conduct changes** generally will improve allocative efficiency as the market becomes more competitive

No surprises, right?

Distributive issues

See Ch. 19. (*Note*: **corrected**: was Ch. 20.)

- **Empowerment** works in favor of the lower end of the income distribution (money isn't all-powerful, but money is power)
  - *Populist myth*: the effects of the Internet are invariably empowering, thus good for average citizens
- **Economies of scale and scope** lead to concentration; even if the nature of the industry leads to low margins and even low profit rates, large companies generate large cash flows, and some of the people involved will get to keep a lot of money
  - *Monopolist myth*: the effects of the Internet are invariably concentrating, thus good for the rich, the smart, and the lucky
- The **digital divide** is a real phenomenon: the wealthy, both

within a society and across nations, have much better access to the Internet than the poor

- **Moore's Law** (vulgar version: "the cost of computing halves every 18 months") means that Internet diffusion rates necessarily have peaked among the rich (who already have above 50% penetration rate) but will accelerate for some time among the poor

IPOs and the dot.com bust

- We'll skip these because they're hard to explain in economic terms at this level
- IPOs are covered in Ch. 14
- The dot.com bust in Ch. 15; this is interesting to compare with Christensen's model of the disruptive innovation
- These will not be covered on the second midterm

e-Commerce technology applications

Read Ch. 16 in Deak.

- Various industries use e-commerce, see reading for more details
- Health care, education, financial services, real estate
- Not as various as you might think; common points:
  - Extremely information-intensive
  - Customized personal service
  - Large impact on consumers

Health care

- B2C services: insurance claims, appointment management, medical records (intranet), contact points, treatment information (for patients)
  - Interesting point: general search engines not good enough (as of 2000)
- B2B services: medical records (to other providers), treatment information (for providers), supply chain management (hospitals)
- Large P2P sector: support groups, dissatisfied with treatment, unusual medical problems, *etc.*

Education

- B2C: organizational web pages, academic web pages, research web pages, student web pages
  - **Distance learning**: related to **computer-assisted instruction**, generally not satisfied with results yet
- B2B: supply chain management, grantsmanship, research cooperation and publication
- P2P: very active

Finance

- B2C: electronic brokerages, internet banking (pure and mixed-channel), digital cash, online insurance, trading information
- B2B: payment systems, electronic clearing houses
- P2P: active

Real estate

- Information intensive, risky (large investment)
- Brokers used to monopolize information, empowerment of consumers
  - Quality of school districts

Advantages of a common market

Read Ch. 17 of Deak, *The Taxation of e-Commerce*.

- Economies of scale in economic bureaucracy
  - One accounting system, economies for tax*payers*
  - Elimination of redundancy among tax*collectors* (not realized!)
- Elimination of customs and tariff barriers
  - What about *weigh stations*? – highway maintenance
- Scheduling, location, and route flexibility
  - Substitute transport across boundarines for warehouses in each region

Role of regions in a common market

- Goods are *geographically differentiated*
  - Personal services (more generally, labor) "are where" the supplier is
  - High transport cost/value ratio
  - Informational frictions at moderate transport cost/value ratio
- "Single tax" (Henry George, refers to tax on *land*) is perfectly adapted, the land in the region doesn't move
  - But in modern economic quasi-rents are at least as big, want to tax corporate profits and high-income individuals, too
- Above frictions allow tax differentials by region

Role of Internet in a common market

- Reduction of "frictions"
  - Interregional service delivery by Internet at marginal cost zero
  - Reduction of interregional information frictions: marketing, search, ordering
  - Reduction of financial frictions (efficient payment systems)
- **Location identification** of an Internet event is *impossible*: if the cost of transport is *zero*, how do you decide whether the customer visited the vendor, or the vendor visited the customer?
  - And where is the vendor (customer), anyway? Where the head office (residence) is? Where the server (client) host is?

Effect of Internet on regional taxation regimes

- Punch line: avoidance a la offshore enterprises, jurisdiction conflicts, externalities ("race to the bottom") a la European Union
- **Tax avoidance**: vendor/customer claims "this trade is not taxable in your jurisdiction" to vendor's region and customer's region at the same time!
- **Jurisdictional conflict**: different regions claim the exclusive right to tax a particular trade

U.S. tax law and the Internet

- Definitions: tax on *income vs.* tax on *output* (**sales tax**, **VAT**)
  - Income tax easier to assign to entity, but bad incentive effects; output tax has bad distributional effects (*regressive*)
- Definitions: tax on *gross final output* (**sales tax**) *vs.* tax on *net intermediate output* (**VAT**)
- **Interstate commerce clause** prevents states from taxing *sales* in other states
  - Congress and the courts decided that there must be a **physical nexus linking the vendor and customer in a state**, such as a store, then mail-order transactions can be taxed even if they don't involve a visit to the store
  - Avoid tax by buying in a low-tax state and bringing it home

to a high-tax state (*cf.* cigarette and liquor smuggling even today)

  - Alternative: **use tax** depends on self-reporting by consumers

- *Triangle* transactions: customer in NY pays company in CA, takes delivery from warehouse in Kentucky; who can tax?

- States started creating various special Internet taxes on the grounds that the presence of the Internet created a **nexus** between vendor and customer in a state, Congress said "no way, that's our job" and pass the *Internet Tax-Freedom Act* (ITFA)

  - Primary rationale is to avoid killing the infant industry via the **tragedy of the anti-commons**