Other factors may contribute to concentration and shakeouts.
Forces Causing Concentration

• Previous lecture explained main cause of shakeouts

• Other forces may be at work simultaneously in shakeouts, or otherwise affect concentration

• Why know about these other forces?
  – Common themes; people expect you to know
  – Affect competition in certain situations
  – Understand more of how technology works

• Six forces

• Static long-run: cost-spreading & concentration
1. First- & Early-Mover Advantage

- Previous lecture: Early entrants grow larger, spread R&D cost over more units
- Other possible early-mover advantages:
  - Win race for patent(s) [But simple races are rare]
  - Reputation, customer loyalty, switching costs [But big quality/price differences undermine; limited output makes less relevant]
  - Will discuss cost-reduction, lock-in, networks shortly
  - ....
2. Efficient Production Scale

- Lowest unit cost at a *minimum efficient scale*: output of 1 most-efficient machine
- Same cost for more output: 2+ machines
- *Increasing returns to scale* below minimum
- *Constant returns to scale* above minimum
Figure 4.2
Average Costs with Two Products $X_1$ and $X_2$ and Economies of Scope
Other Scale/Scope Advantages

• R&D cost-spreading
• Advertising cost-spreading
• Distribution networks
• Managerial efficiency and inefficiency
3. Progressive Cost Reduction

- Often called *learning curves*
  - Or *experience curves*
  - Implies workers learn to be more efficient
  - But often workers become skilled quickly (2-4 weeks in TV set assembly), can move between jobs

- Studies of progressive cost reduction distinguish specific sources

- R&D a key source of progressive cost reduction
4. Technology Lock-In

- One technological standard instead of another
- Hard to change (user networks, development cost)
- May be an inferior technology
- Examples:
  - QWERTY typewriter keyboard (vs Dvorjak)
  - VHS videocassette recorders (vs Betamax)
- Arguments over whether inferior technology locked in
  - Liebowitz & Margolis contradict David re. QWERTY
5. Network Economies

- Networks of users benefit from each other
- Hard to switch standards once the network is established
- Causes one type of lock-in
- Examples
  - QWERTY, VHS
  - Microsoft Word
  - Railroad track widths
6. Sunk Costs

• Entering an industry has a cost
• May be for technology development, purchase of machines, etc.
• Few firms enter if the sunk cost is very large
• Because the cost must be spread over the number of units produced
A Static Long-Run View

- Argues we must look across different competitive models:
  - Bertrand vs Cournot vs monopoly
  - Product differentiation
- Puts *bounds* on competitive outcomes, instead of predicting the outcomes
Without Cost-Spreading

industry concentration in the grey region

concentration
high (100% by 1 firm)
low (evenly distributed, many firms)

market size / minimum efficient scale
With Cost-Spreading

industry concentration in the grey region

concentration
high (100% by 1 firm)
low (evenly distributed, many firms)

market size / minimum efficient scale