Midterm Examination

Economics 139A

May 1, 2008
Version B

Abstract

This examination is a **closed-book** examination. You should not need any tools beyond a pencil or pen to write the answers. Calculators, cellphones, and other devices with memory are prohibited. When a problem asks you *to compute*, or *to show how to compute*, determine the appropriate formula, and substitute the numerical values from the problem into the formula.

When a question seems to ask for a yes/no answer, *most credit* depends on the explanation for your choice. For example, when the question asks, "Is this market elastic?," a satisfactory answer will look like, "Yes, because the market's elasticity is less than the critical value of -1." Unless asked explicitly, you don't need to explain what an "elasticity" is for this kind of question.

Please write your answers directly on this examination paper. Don't forget to write your name and student number on this page, *and your student number on each sheet* (booklets occasionally do come apart in transport). If you need extra space for answers, feel free to use the back of the last page. Clearly mark answers that have been continued on a different page.

Do not open this examination booklet until instructed to do so.

1. List the **four standard market structures**. Which is most favorable to **customers**? Which is most favorable to **vendors**? Which is best able to analyze **strategic interactions among vendors**? Briefly **describe your reasons** for each choice.

   Answer: The four market structures are **(perfect) competition**, **monopoly**, **monopolistic competition**, and **oligopoly**. *Perfect competition* is most favorable to customers because price is lowest and consumer surplus largest. (Monopolistic competition is less preferred as an answer but is acceptable—full credit—if justified on the basis of customers' *strong* preference for diversity.) *Monopoly* is most favorable to the vendor because of high prices and maximum profit. Oligopoly is *defined* in terms of the need to account for rivals' behavior, and thus is most suitable to thinking about strategic interaction.

2. Explain the advantage of WWW technology to "ordinary users," and how this affected the spread of personal computers and e-commerce.

   Answer: The important characteristic of the WWW is that it allows a user to "point" at a *description* of information and retrieve the desired content simply by "clicking on it." This drastically reduces the need for technical training compared to the Internet, which requires the user to be familiar (to some degree) with the underlying technologies and the syntax of addresses for information. This made it very easy for hundreds of millions of untrained consumers to access resources from the WWW, and promoted "intranet" technology for internal communications of business as well, for similar reasons.

3. Give definitions of **economies of scale** and **learning-by-doing**. Make sure to describe the distinction between the static effect and the dynamic effect in your answer. (You may include that in the definitions, or as a separate comment.)

   Answer: *Economies of scale* are a *static effect* that occurs when the *current rate* of production is high, and this drives productivity (output/input) up, and unit costs down. However, if production drops, the economies of scale are lost. *Learning-by-doing* is a *dynamic effect* based on efficiencies (increased productivity, decreased unit costs) that accumulate the more you produce over time. Learning-by-doing efficiencies *are not* lost if the rate of output decreases in the future.

4. Compute the **four-firm concentration ratio** and the **Herfindahl-Hirschman index** based on the market shares in Table 1. Based on your computation, would the U.S. Department of Justice (DoJ) consider this market an appropriate one for consideration for anti-trust action, and what action might be considered? Give the DoJ's criterion.

   Answer: The DoJ would definitely consider anti-trust action here. Specifically, since the HHI is in the "problematic region" it would consider opposing mergers. The "problematic region" is defined by HHI in the range 1600–1800.

5. In the *Napster* case, Napster claimed that the **peer-to-peer** nature of its technology meant that it was not guilty of copyright infringement itself. Explain why this is a legally correct argument based on the definition of **copyright**. What aspect of Napster's business nonetheless was consider to constitute "contributory" copyright infringement?

   Answer: *Copyright* is defined as the exclusive right to copy a *particular expression* of an idea as *fixed in some medium*. Since Napster was doing no copying itself, not even participating in transmission of copies, it was not infringing directly. However, by providing a global index of available copies that it did not know copying was permitted, it was *contributing* to infringement by consumers.

6. Describe the **three types of merger**, and the channels by which each may reduce competition.

   Answer: The three kinds of merger are **horizontal merger** between firms that compete in the same markets with *similar* products, **vertical merger** between firms in a *vendor-customer* relationship, and **conglomerate merger** between firms that do not meet in the same markets as either rivals or trading partners. *Horizontal* mergers reduce competition directly by eliminating one or more competitors. *Vertical* mergers reduce competition indirectly by locking in a particular partnership, and possibly removing those firms from the market. *Conglomerate* mergers may reduce *potential competition*, since merger among firms that are in different geographic markets may be considered conglomerate, and you would generally expect some relationship among firms that wish to merge.

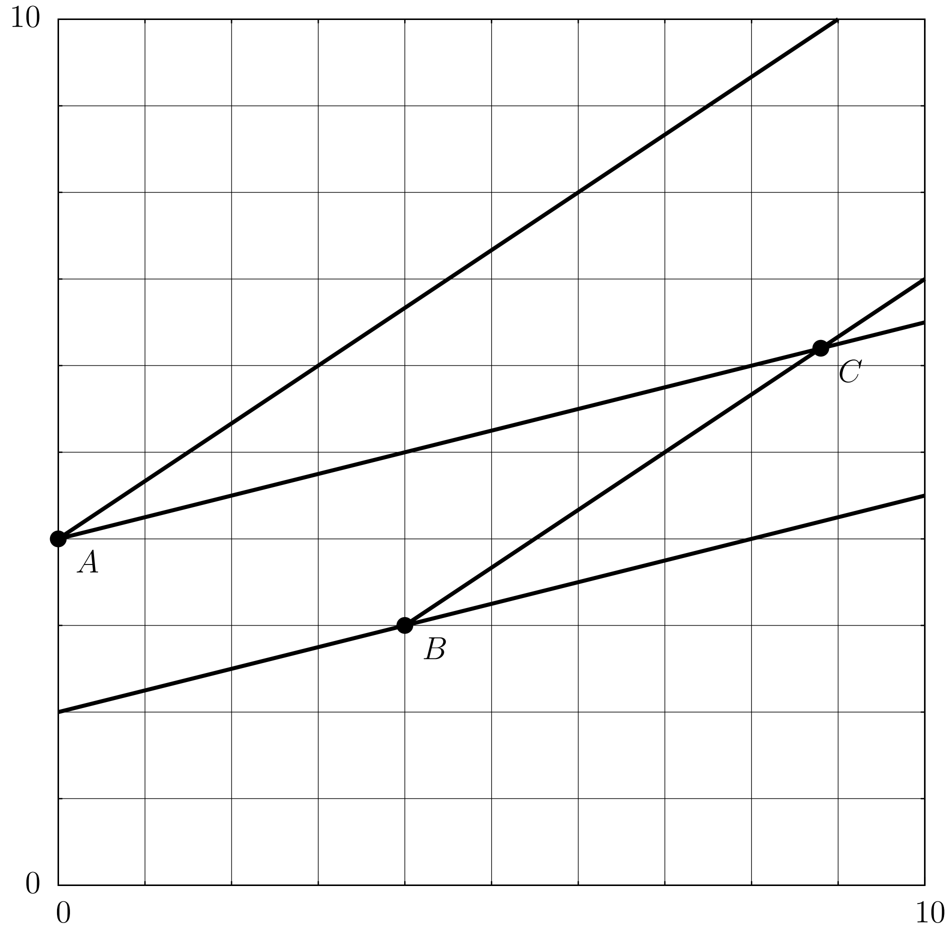

Figure 1: The innovator's dilemma

7. Fig. 1 displays the dynamic evolution of the "innovator's dilemma" in a market. **Label the axes** with appropriate variables. Label each of the four straight lines with the market process it represents. **What events** correspond to points A, B, and C, respectively? Briefly describe the **competitive threat** faced by the incumbent(s). What is the **innovator's dilemma**? (The sample answer describes "competitive threat" and "innovator's dilemma" in one sentence each.)

   Answer: The horizontal axis represents *time* and the vertical axis the *quality* of the good traded in this market. The more shallowly sloped line passing through point A (resp. point B) represents the evolution of the *quality requirement* of the incumbents' (resp. the entrants') target customers over time. The steeper lines represent the evolution of the *quality provided* by the incumbents' (resp. the entrants') product over time.

8. What does the abbreviation **B2B** stand for? Briefly describe three *kinds* of activity that some vendors provide for B2B.

   Answer: "B2B" stands for *business to business e-commerce*. Some of the activities provided as B2B include online ordering, shipment tracking, payroll processing, and trouble ticket tracking and resolution.

9. How have e-commerce and the Internet worked to empower consumers?

   Answer: The Internet empowers the consumer in several ways. First, it makes search more comprehensive (Google *et al.* allow searching the whole WWW), faster, and more accurate (by allowing "advanced search" to narrow the results). This empowers consumers to find better and cheaper products. Second, it makes some formerly business-only activities (*e.g.*, shipment tracking) sufficiently cheap that they can be offered to consumers as well. Third, by expanding the reach of companies to global scale, the Internet may enhance competition leading to higher quality and lower prices.

10. Contrast the Internet with the World Wide Web. How are they different?

    Answer: Most important for e-commerce, the Internet is *message- (or connection-) oriented*, while the World Wide Web is *information-oriented*. That means that on the Internet each user needs to spend effort determining *where* the desired information is located, whereas in the WWW the content provider specifies links, so the user can focus on *what* she wants. The Internet is the more basic technology, and is the infrastructure on which the WWW is implemented. It provides other services besides the WWW.

For extra credit, you may choose *one* of the following questions and answer it.

Extra credit questions are relatively controversial topics. They should be graded on the basis of how well the student supports their opinion, not on (your opinion of) its correctness per se. *Logical correctness, readable expression, and use of appropriate economic or e-commerce terminology should be weighted equally, 5 points each.*

1. Briefly discuss whether you think the **last-mile problem** (low-bandwidth connections to personal computers in homes and offices) or the **market concentration of local loop providers** (such as cable TV and local telephone companies) is more likely to affect your use of the Internet, the WWW, and e-commerce in the next few years.

   Answer:

2. There are a number of different *search engines* with which customers can try to find vendors of products they demand. Suppose that "Search G" presents the results in order of "page rank," which measures the number of unaffiliated web pages that link to a given page, while "Portal Y" presents the results on the basis of the amount paid to Portal Y by a sponsor of each page. As a **customer**, which search engine would you prefer? Explain your choice.

   Answer:

Firm	% share	share^2	Cumulative share	Cumulative HHI
A	25	625	25	625
B	25	625	50	1250
C	15	225	65	1475
D	10	100	75	1575
E	5	25		1600
F	4	16		
G	4	16		
H	4	16		
I	4	16		
J	4	16		1680
4-firm concentration ratio			75%	
Herfindahl-Hirschman index				1680

Table 1: A fictitious industry