

Homework Set 1, ECON 5333, Darren Grant, Summer/Fall 2004. Be prepared to help present answers in class.

1. SW Bell offers inside wire maintenance.

a) What is the basic motivation for buying inside wire maintenance, versus calling and paying for the repairman yourself?

b) Consider two market imperfections that may be relevant in the market for inside wire maintenance: moral hazard and adverse selection. Explain how they could/would apply here. Are they both important in this market, or is one much more important than the other? Why?

c) SW Bell has a policy that you must be on inside wire maintenance for at least one month before you can “file a claim” and get inside wires repaired. Is this policy designed to reduce moral hazard or adverse selection? Ultimately, is it good or bad for the typical consumer?

d) Come up with at least one other constructive way SW Bell can attempt to reduce adverse selection or moral hazard in this market. (By “way,” I mean a way to adjust or re-design the inside wire maintenance “contract” that SW Bell offers to consumers. Currently, you sign up when you want to, cancel when you want to, and pay a fixed monthly fee which is the same for everyone.)

2. Some of us wear glasses, and must get eye exams every so often. Others have the laser surgery so we don’t need to wear glasses.

a) The market for eye exams can (I think) be considered perfectly competitive, or fairly close to it, while the market for laser surgery cannot. What are the primary reasons this is the case?

b) Which of the following behaviors would be observed in a perfectly competitive market such as that for eye exams? Which would be observed in the other market?

- Firms have little or no leeway in choosing their price.
- Firms are generally very interested in having more customers.
- Investors typically earn a rate of return on their investment that is better than normal.

c) Some states limit opticians’ ability to advertise, I know; maybe they do for optometrists as well. Assess the wisdom of prohibiting advertising in the market for optometrists and laser surgeons, from the perspective of whether it would help or hinder the performance of the market.

3. Illustrate, for each situation, the effect of the “event” on price and quantity in the market specified, using a supply/demand graph.

- a) An decrease in income, on the market for gold.
- b) A cost-saving technology improvement, on the market for computers.
- c) A flood (of water), on the market for wheat.
- d) Summer (vacation time), on the market for gasoline.
- e) An increase in the price of electricity, on the market for steel.
- f) An increase in the price of mustard, on the market for (grocery store) hot dogs.

4. On a supply/demand graph, analyze the effect of the following events on price and quantity in a perfectly competitive market for health insurance.

- a) The population gets older.
- b) Managed care plans find innovative ways to improve efficiency.
- c) The prices of physician services increase.
- d) People become more risk averse.

5. (Folland et al., #5,6 in Ch. 7, modified) Suppose, if ill, that Fred’s demand for health services is summarized by the demand curve  $Q = 50 - 2P$ , where  $P$  is the price of services in dollars and  $Q$  is the amount of services purchased in unspecified units. Fred has a 30% chance of falling ill each year. The market price of services is \$20 per unit.

- a) If uninsured, how many services does Fred purchase if ill and what is the total amount of money he spends?
- b) If fully insured (no coinsurance), how many services does Fred purchase if ill and what is the total amount of money spent by the insurance company on Fred’s illness?
- c) If there are no loading costs, what is the price of insurance, sold to consumers like Fred, that yields zero expected profit?
- d) This question is an example of which: moral hazard, or adverse selection?

Homework Set 2, ECON 5333, Darren Grant, Summer/Fall 2004.

*Edifying In-Class Question.* We will work on this in class in groups. Become familiar with what this question asks but don't worry about trying to solve it on your own.

1. I list below a set of islands in which the inhabitants can produce ham or eggs. The table below tells how many pounds of ham or eggs each island could produce in a day if all the inhabitants devoted their time to the production of that commodity. (They can't do all the Ham and all the Eggs—they must choose.)

Island	Pounds of Ham in a Day	Eggs in a Day
Apple	8	14
Ball	8	13
Victor	7	15
Pop	11	12
Echo	5	3
Fixins	7	10
Whisky	8	16
Delta	9	12
Gotcha	5	9
Happy	2	2
Mandible	3	9
Jumpin Jack	10	16
Keg	7	10
Nibbles	5	11
Lazy	8	15

It takes one Pound of Ham and two Eggs to make a ham and egg sandwich. Your goal is to maximize the total number of ham and egg sandwiches produced by all islands jointly. How? Who does what? How did you get your answer? (An island can, if it wishes, devote some fraction of its day to Ham and the other fraction to Eggs.)

*Homeworks.* Be prepared to help present answers in class.

2. The discusses how U.S. health care spending, as a share of GDP, was higher than in other countries.

There are three potential reasons for this (they are not mutually exclusive). One is that there is a lack of efficiency in the system. Another is that the demand for health care is income elastic (health care could be called a “superior good” or “luxury good”). A third is distributive—that the U.S. health care sector is getting “a bigger piece of the pie” even though they aren’t actually producing any more health care per capita.

- a) Describe what each of these three potential reasons means in simple language.
- b) Give one fact to support of each of these three potential reasons. Which explanation do you think is most important?
- c) Under which circumstance (reason for high spending) would it be possible, at least in theory, to generate more health care without making anybody worse off?

3. Health care workers, like coal miners, pilots, and others, are exposed to health risks in the course of doing their jobs. Often, because of prior industry experience, these risks are well known and well understood, e.g., how many miners die each year from mining accidents, the rate at which current or former miners get lung cancer, etc. Often, too, the employer could lessen these risks at some expense.

- a) Are these markets efficient, or should the government intervene in the market to protect workers?
- b) If government were to intervene in a market by forcing employers to take protective measures, what would happen to wages and total employment in that industry? (If you want to illustrate this with a supply/demand graph for workers, workers are represented on the supply curve and firms on the demand curve.)
- c) Industrial conditions for workers are often more hazardous in developing countries than in the United States. In what ways might this be efficient?

4. Laws prohibiting smoking in public places—efficiency enhancing, or not? Laws prohibiting the advertising of cigarettes (for example, on television)—efficiency enhancing, or not?

Homework Set 3, ECON 5333, Darren Grant, Summer/Fall 2004. Be prepared to help discuss these in class.

1. Managed care for cars. Design a “managed care” contract to offer to consumers to maintain the “health” of your car. Describe the key features of your contract and argue why those features should be present in your contract, and why other features that you have omitted should not be present. In what ways does your contract differ from a standard HMO contract? Why? What should be inferred from the fact that these sorts of contracts are not widely available?

2. While many surgeries can be planned in advance, and there is time to get a second or third opinion, if necessary, or to get pre-approval from one’s HMO, there are some circumstances where this is not the case. Furthermore, physicians differ in the way they choose to treat some conditions for which pre-approval is not feasible. For example, some physicians are more inclined to perform cesarean sections in childbirth than others are. Also, some mothers are more inclined to receive a cesarean than others are—some are more welcoming, or tolerant, of invasive procedures. In this question we think about the matching of physicians and patients based on practice style (whether the physician prefers to perform invasive procedures or not, and whether the patient prefers to receive them).

a) In a market where there was extensive competition between different managed care plans and good consumer information about the physicians in those plans, would be the outcome of market competition in terms of the sorting of physicians and consumers into managed care plans? Specifically, would more invasive physicians tend to be matched with consumers who preferred more invasive practice styles in their physicians? Think about the forces that might help to bring this about.

b) What is the efficient method of sorting physicians and consumers into managed care plans? Specifically, would it be efficient for invasive physicians to be matched with consumers who prefer invasive procedures? Think about how competition will move the market toward efficiency.

3. Waiting in waiting rooms is common. This reflects, in part, the uncertainty of the daily schedule—some patients need to be seen urgently that did not make an appointment, while others make an appointment and then break it, or just don’t show up. Let us consider waiting/scheduling from a value creation perspective.

a) What are the primary costs—to the firm and to customers—of making customers wait? In what circumstances will these costs be relatively large? Relatively small?

b) What are the primary benefits of making customers wait? In what circumstances will these benefits be relatively large? Relatively small?

c) Does it maximize value added (value creation) to design the schedule so that, as near as is possible, there is *always* someone waiting? Why or why not?

d) Waits for doctor visits are typically longer than for haircuts, and overbooking doctor’s appointments is much more common than overbooking haircuts. Discuss why this is preferable from a value added perspective.

e) Most people have health insurance, and pay only a small co-pay, set by the insurance company,

for each doctor's visit. How does this fact affect the incentive to create value, and the ability to capture the value created, by lowering waiting times in doctor's offices? Why aren't these same problems observed regarding waiting times for haircuts?

*Edifying In-Class Question.* We will work on this question in class in groups. Specifically, we will simulate the conditions described in the question, see what happens, and then find the answers quasi-mathematically. You are welcome to try to figure out what's going to happen beforehand. As in the previous "edifying in-class question," the purpose is not to teach mathematical techniques but to illustrate what markets do—don't focus overly on the technical aspects. We will use mostly the same groups as before—each group is an island.

4. *Each island in a chain of 15 islands in the Pacific has one manufacturer of "happy bread," a bread made out of poppy seeds that makes you very, very happy. On each island is one potential customer. This customer will buy one loaf at a price of \$7, two loaves at \$6 each, three at \$5 each, and so on. The machinery for happy bread allows the manufacturer to make up to four loaves (and no more) at a cost of \$1.50 per loaf. (For simplicity, there is no business overhead.) Initially, pirates roam the seas and so it is not possible for a manufacturer on one island to sell bread to another island. So each manufacturer is a monopoly on its island.*

a) In this part of the simulation each island sells only to the one potential customer on its island. Calculate the profit to be made at a price of \$7, \$6, \$5, and \$4 (all loaves sell at the same price) and then choose the profit-maximizing selling price. How much value is created? How much is captured by the monopolist?

*As part of the war on terrorism, George Bush, Tom Ridge, the CIA, FBI, AFL/CIO, and BMI/ASCAP rid the seas of pirates. Now it's easy to sell happy bread on any island, and since transport is very inexpensive, the market is essentially perfectly competitive.*

b) In this part of the simulation customers and sellers are free to move from island to island in search of business. We will let the market establish the price. How much value is created on each island? How much is captured by the seller?

*The Economic Freedom Act of 2417 allows manufacturers to expand their capacity; this capacity expansion allows you to make up to eight loaves (not just four) at a cost of \$1.50 per loaf. Islands will be asked sequentially (Apple goes first) whether they wish to expand their capacity.*

c) After capacity has been expanded, we will repeat the simulation in part b). We will let the market establish the price. How much value is created on each island? How much is captured by the seller?