

Economics 11; Weekly Assignment Sheet for Week 11 -- Externalities and Public Goods

A. Text and workbook

1. Text: Chapter 18; omit nothing.

2. Study guide: Chapter 18; omit nothing.

a. NOTE: The answers given in the back of the Study Guide to the following questions are wrong either in whole or in part (thus it is left to you, at least for now, to find the right answers!): p. 175, #5; p. 178, #18 (none of the answers is correct); p. 179, #5 (not a well expressed question).

B. Reading(s)

1. In what fundamental respect does increasing returns differ from other sources of market failure? Give an example of a market failure that is unrelated to any form of externality. Use that example, along with the fact that externalities are a source of market failure, to demonstrate the general nature of market failures unrelated to increasing returns.

2. The AB Line, the only provider of rail transport between points A and B, has just declared bankruptcy. It operated profitably until a law was passed making it liable for the crop damage caused by sparks from its locomotives. Its profits were simply insufficient to cover all of the valid liability claims against it; hence the bankruptcy.

a. Is the ensuing bankruptcy sufficient to demonstrate that the law's passage led to an increase in social welfare?

b. Generalize: Can the market provide a sufficient test for determining the optimal allocation of property rights? Explain, with reference to this example.

C. Puzzles

1. Suppose a monopoly produces a harmful externality. Use the concepts of consumer and producer surplus to analyze whether an optimal tax on the polluting monopoly would necessarily yield a welfare improvement.

NOTE: Assume that transactions costs preclude bargaining between the monopoly and those it harmfully affects.

2. The following table shows how the average fish catch, in pounds caught per day, varies with number of fishing boats on Lake Pleasant.

Fishing Vessels on Lake:	1	2	3	4	5	6	7	8
Average Catch (lbs./day):	600	550	501	451	400	350	301	250

Note: The ones appearing at the end of some average-catch values are NOT a typographical error!

You also need to know that the competitively determined price of fish is \$1.00 per pound and that it costs \$300 per day to operate a fishing boat.

a. Suppose that the government owns Lake Pleasant and allows anyone to operate a fishing boat on it without payment of any fee for doing so. How many vessels would go out fishing? Explain.

b. Now suppose that you buy the lake from the government.

1. What is the profit-maximizing, (lump-sum) fee -- for the right to fish, not per pound of fish caught -- that you would charge anyone wanting to operate a fishing boat on what is now your lake? Briefly explain how you got this answer.

2. What is the corresponding number of fishing vessels on the lake? Are those who fished on the lake when it was owned by the government made any worse off by your taking it over and charging an access fee? Explain.

3. What effect does your action have on social welfare? Explain.

3. When Bill and Sue lived separately, neither owned a television. Yet one of the first things they did on "joining forces" was to buy one. How can this be explained without reference to changing tastes?

4. Emily and Jennifer are roommates. Emily likes raucous music, Jennifer does not. Every week, each of them gets two dozen chocolate chip cookies from home. Both like chocolate chip cookies! Draw an Edgeworth-Bowley box diagram showing the possible allocations of cookies eaten and hours of music heard in their room. (Notice that both must consume the same amount of music.)

HINT: With Jennifer's origin being at the bottom-left of the diagram, measure hours of music in the downward direction for both Emily and Jennifer, so that Jennifer's indifference curves will have the normal shape. (Since hours of music increase as Jennifer's origin is approached, lower indifference curves reflect lower utility for Jennifer; alternatively, there are more hours of quiet as Emily's origin is approached.) Set the height of the box by assuming that Emily becomes saturated with music (i.e., can't tolerate any more) after a certain number of hours of listening and that this number does not depend upon how many cookies she consumes.

- a.** Suppose that college policy permits Jennifer to determine how many hours of music are to be heard in Emily and Jennifer's room. Label the initial allocations for this case in your diagram. Also: show the highest indifference curves that Emily and Jennifer can possibly achieve without trade; shade in all of the allocations that would make both roommates better off than their initial allocations. Show the efficient allocations that could be achieved by trade between Emily and Jennifer.
- b.** Now suppose that college policy permits Emily to listen to as many hours of music in Emily and Jennifer's room as she chooses to hear. Complete the steps described above for this case.
- c.** What are the highest levels of utility that Emily and Jennifer can respectively achieve through trade under each of the two policies?
- d.** Which dorm policy would be preferred by Emily? by Jennifer? Could it ever happen that this was not the case?
- e.** Does the Coase Theorem apply to the assignment of "listening" property rights between Emily and Jennifer: in the strong form; in the weak form? Explain.
- 5.** Now repeat the analysis under questions a through c above assuming that Jennifer is completely indifferent to the amount of music that Emily plays.