

Economics 500: Microeconomic Theory
State University of New York at Binghamton
Department of Economics
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Problem Set #12

1. The Coase Theorem says that efficiency in resource allocation will result from assigning property rights to resources. Give the intuition behind this theorem. Does it matter who receives the rights to the property? Explain.
2. Bryan can smoke his Newport Cigarettes with or without a filter. Smoking without a filter results in greater second-hand smoke damage to his mom. The relevant gains and losses for the two individuals are listed in the table below.

	With Filter	Without Filter
Gains to Bryan	\$200/week	\$245/week
Damage to his mom	\$35/week	\$85/week

- a. If Bryan is not liable for smoke damage and there are no negotiation costs, will the smoke with a filter? Explain carefully.
 - b. How, if at all, would the outcome be different if Bryan were liable for all second hand smoke damage and the cost of filtered cigarettes were \$10/week higher than indicated in the table? Explain carefully.
3. Recently, Ted Turner of Turner Broadcasting, argued before a congressional committee that they should make a law rating TV shows for violence content. He said that children are damaged and violence must be curbed. He indicated that his own network shows too much violence. Explain why someone who shows violence on his TV channels is arguing for government regulation of himself.
 4. Televisions seem to fit the definition of a public good fairly well, yet most TV in the U.S. is provided by private companies. Can you explain why? How has HBO dealt with the problem of excludability?
 5. A firm in a perfectly competitive industry has patented a new process for making widgets. The new process lowers the firm's average cost curve, meaning this firm alone (although still a price taker) can earn real economic profits in the long run.
 - a. If the market price is \$20 per widget and the firm's marginal cost curve is given by $MC = 0.4Q$, where Q is the daily widget production for the firm, how many widgets will the firm produce?
 - b. Suppose a government study has found that the firm's new process is polluting the air and estimates the social marginal cost of widget production by this firm to be $MSC = 0.5Q$. If the market price is still \$20, what is the socially optimal level of production for the firm? What should the rate of government-imposed excise tax be to bring about this optimal level of production?

- c. Graph your results.
6. There is considerable legal controversy about product safety. Two extreme positions might be termed let the buyer beware and let the seller beware. Under the former scheme producers would have no responsibility for the safety of their products: buyers would absorb all losses. Under the latter scheme this liability assignment would be reversed: firms would be completely responsible under law for losses incurred from unsafe products. Using simple supply and demand analysis, discuss how the assignment of such liability might affect the allocation of resources. Would safer products be produced if firms were strictly liable under law? How do possible information asymmetries affect your results?
7. Suppose a monopoly produces a harmful externality. Use the concept of consumer surplus to analyze whether an optimal tax on the polluter would necessarily be a welfare improvement.
8. A monopolist can produce at constant average and marginal costs of $AC = MC = 5$. The firm faces a market demand curve given by $Q = 53 - P$.
- Calculate the profit-maximizing price-quantity combination for the monopolist. Also calculate the monopolist's profits.
 - What output level would be produced by this industry under perfect competition (where $P = MC$)?
 - Calculate the consumer surplus obtain by consumers in case (b). Show that this exceeds the sum of the monopolist's profits and the consumer surplus received in case (a). What is the value of the "deadweight loss" from monopolization?
9. A monopolist faces a market demand curve given by
- $$Q = 70 - P$$
- If the monopolist can produce at constant average and marginal costs of $AC = MC = 6$, what output level will the monopolist choose in order to maximize profits? What is the price at this output level? What are the monopolists profits?
 - Assume that instead that the monopolist has a cost structure where the total costs are described by

$$TC = 0.25Q^2 - 5Q + 300$$
 With the monopolist facing the same market demand and marginal revenue, what price-quantity combination will be chosen now to maximize profits? What will profits be?
 - Graph the market demand curve, the MR curve, and the two marginal cost curves from parts (a) and (b). Notice that the profit-making ability is constrained by the market demand curve (along with its associated MR curve) and the cost structure underlying production.

10. Suppose the market for Hula Hoops is monopolized by a single firm
 - a. Draw the initial equilibrium for such a market
 - b. Now suppose the demand for Hula Hoops shifts outward slightly. Show that, in general (contrary to the competitive case), it will not be possible to predict the effect of this shift in demand on the market price of Hula Hoops.