Practice Problems #8
E201 Spring 2016

The problems below draw from the material in Chapters 9 and 10 and accompanying lectures.

1. The world price of cotton is below the no-trade price in Great Britain and above the no-trade price in Peru. Using supply and demand diagrams and welfare tables such as those in Chapter 9, show the gains from trade in each country. Compare your results for the two countries.

2. Suppose that Congress imposes a tariff on Japanese motorcycles to protect the U.S. motorcycle industry from foreign competition. Assuming that U.S. and Japanese motorcycles are homogeneous (perfect substitutes), use a diagram of the market for motorcycles sold in the U.S. to show the effect of this tariff on the following: the quantity of Japanese imports, the quantity of domestically produced motorcycles, the price of motorcycles in the U.S., government revenue, and the deadweight loss. What does the deadweight loss represent?

3. Alcohol consumption is directly related to motor vehicle accidents; thus, greater consumption of alcohol imposes costs on people who do not drink and drive.

   a. Illustrate the market for alcohol, labeling the demand curve, the social-value curve (marginal social benefit curve), the supply curve, the social-cost curve, the market equilibrium level of output, and the efficient level of output.

   b. On your graph, shade the area corresponding to the deadweight loss of the market equilibrium. (Hint: The deadweight loss occurs because some units of alcohol are consumed for which the social cost exceeds the social value.) Explain.

4. Consider the market for fire extinguishers.

   a. Why might fire extinguishers exhibit positive externalities in consumption?

   b. Draw a graph of the market for fire extinguishers, labeling the demand curve, the social-value curve (marginal social-benefit curve), the supply curve, and the social-cost curve.

   c. Indicate the market equilibrium level of output and the efficient level of output. Explain why these quantities differ.

   d. Label the deadweight loss associated with the market equilibrium. What does this area represent?

   e. If the external benefit is $10 per extinguisher, describe a governmental policy that would result in the efficient outcome.
5. a. Education is produced and sold by private schools. What is the economic argument for public provision of education?

b. Use a graph to illustrate the socially optimal level of college education.

c. List some of the benefits of college education that spill over to society at large.

6. a. A copper smelter emits a smoke externality that contains sulfur dioxide. Suppose the external cost is $5 per pound of copper produced. Explain exactly why this smoke is a cost.

b. Use a graph to show the market quantity of copper and the socially optimal quantity.

c. Label the welfare loss associated with the market outcome. Explain what this welfare loss represents.

7. Many observers believe that the levels of pollution in our economy are too high.

a. If society wants to reduce overall pollution by a certain amount, why is it efficient to have different amounts of reduction at different firms?

b. Command-and-control approaches often rely on uniform reductions in pollution among firms. Why are these approaches generally unable to target the firms that should undertake bigger reductions?

c. Economists argue that appropriate Pigovian taxes or tradable pollution rights will result in efficient pollution reduction. How do these approaches target firms that should undertake bigger reductions?

8. Ringo loves to play rock and roll music at high volume. Luciano loves opera and hates rock and roll. Unfortunately, they are next-door neighbors in an apartment building with paper-thin walls.

a. What is the externality here? What resource is in dispute?

b. What command-and-control policy might the landlord impose? How might such policy be inefficient?

c. Suppose the landlord allows tenants to do whatever they want? According to the Coase theorem, how might these neighbors reach an efficient outcome on their own? What might prevent Luciano and Ringo from reaching an efficient outcome?
9. Suppose there are three factories along a river. Each discharges 1000 units of effluent into the river. The government determines that 2000 units of effluent is the maximum allowable, and the government will sell two 1000-unit permits to the highest bidders. A device capable of eliminating the effluent can be installed by any firm. Cost for Factory A to install the abatement device is $10,000; for Factory B, it’s $15,000; and for Factory C, $20,000.

a. Which firm will install the abatement device?

b. Which firms will buy the permits and at what price?

c. If a fourth firm enters and the pollution abatement cost for them is $25,000, what will happen?