

Econ_101_Spring 2007_IVY Tech College
Chapter_08:_Sample Problems: Solutions

2. Suppose that each of the 80,000 citizens in a particular county would be willing to pay \$0.10 to increase the number of wolf litters by one. Each litter of wolves imposes costs on ranchers (from livestock losses) of \$5,000.

a. Is the provision of an additional litter of wolves efficient from the social perspective?

Total benefits are \$8,000, so this is efficient from a social perspective.

b. If ranchers have the right to kill any wolves on their property, will an additional litter in fact be provided?

No. The cost of \$5,000 exceeds the benefit (.10) to the rancher.

c. Propose a solution to this problem. Describe a transaction that would benefit the wolf-lovers and ranchers.

Have each wolf-lover pay the rancher 7 cents.

4. Suppose the government adopts a zero-tolerance pollution policy, meaning that paper mills are required to eliminate all water pollution. Suppose the paper firms have access to the abatement technology shown in the first two columns in Table 8.1.

a. What is the production cost per ton under the zero-tolerance policy?

From Table 8.1, the production cost per ton with zero pollution is \$116.

b. If the government uses a pollution tax to implement its zero-tolerance policy, what is the smallest tax that would cause the typical firm to voluntarily pick zero pollution?

The marginal cost associated with going from 1 gallon to 0 gallons is \$20. For firms to make this choice, the marginal benefit of abatement must be at least \$20.

6. The following table shows some scenarios for different used-car markets. Which markets are in equilibrium? Graph each equilibrium using Figure 8.3 as a model.

Scenario	A	B	C
Assumed chance of lemon	60%	80%	95%
Willingness to pay for used car	\$6,000	\$5,000	\$4,500
Number of lemons supplied	70	40	90
Number of plums supplied	30	10	10
Total number of used cars	100	50	100

Scenario A is not an equilibrium because the assumed chance of getting a lemon is 60% and is less than the actual frequency (70%). Scenario B is an equilibrium because the assumed chance of getting a lemon is 80% and equals the actual frequency. Scenario C is not an equilibrium because the assumed chance of getting a lemon is 95% and exceeds the actual frequency (90%).

9. On the campus of Bike University, half of the bikes are expensive (replacement value = \$100) and half are cheap (replacement value = \$20). There is a 50% chance that any particular bike— expensive or cheap— will be stolen in the next year. Suppose a firm offers bike-theft insurance for \$40 per year: the firm will replace any insured bike that is stolen. If the firm sells 20 insurance policies, will the firm make a profit? Explain.

Half of the 20 insured bikes will be stolen. The firm's total revenue is \$800. If half the insured bikes are expensive and half are cheap, the firm will pay \$100 to replace 5 cheap bikes and \$500 to replace 5 expensive bikes (for a total of \$600). In this case total revenue exceeds total costs, so the firm would make \$200. The problem with this reasoning is that none of the owners of the cheap bikes will buy insurance because the price of insurance exceeds the cost of replacement. Therefore all 20 of

the insured bikes will be expensive ones, and the firm's replacement cost will be \$1,000. The total revenue would be \$200 less than the total costs.

10. As Kira tries to decide whether or not to do a bungee jump, she asks to make one phone call. If there is a moral-hazard problem, whom will she call?

Her insurance agent. If she is insured, she is more likely to engage in risky behavior.