

Econ_101_Fall_06_IVY Tech College
Homework 04 Solutions
Chapter 07

1. Consider the city of Discville, where zoning laws limit the number of video arcades to one. The city's only video arcade has a price of 50 cents per game and a long-run average cost of 34 cents per game. Suppose that the city eliminates its restrictions on video arcades, allowing additional firms to enter the market. According to the expert in the arcade market, "Each additional video arcade will decrease the price of games by 2 cents and increase the average cost of providing games by 3 cents." What is the equilibrium number of video arcades?

Calculate price and average cost for each number of firms. The equilibrium quantity is 4 firms (price is \$0.44; average cost is \$0.43).

2. The city of Zoneville currently uses zoning laws to restrict the number of pizzerias. Under a proposed law, the restrictions on pizzerias would be eliminated. Consider the following statement by an expert in the pizza industry. "A pizzeria reaches the horizontal portion of its long-run average-cost curve at an output of about 1,000 pizzas per day. The city's existing pizzeria sells 3,000 pizzas per day. Based on these facts, I predict that if the city eliminates the restrictions on pizzerias, we will soon have three pizzerias (3,000 pizzas divided by 1,000 pizzas per pizzeria)." If we assume that the expert's facts about production costs are correct, is the expert's conclusion (three pizzerias) correct?

When the price falls with entry, the quantity demanded will increase; thus the total number of pizzas demanded will be greater than the current 3,000. Also, we know that the firm will be on the downward-sloping part of the average-cost curve when the zero-profit point is reached; thus, each firm must be selling less than 1,000 units. Therefore, there will be more than 3 stores in long-run equilibrium.

6. Consider the market for air travel between Madison and Chicago. The long-run average cost is constant at \$200 per passenger, and the demand curve is linear, with a slope of -\$1 per passenger. A secure monopolist would charge a price of \$280 and serve 70 passengers per day. The other possible prices are \$260 for an insecure monopolist, \$250 for the duopoly outcome, and \$180 for the case in which one firm picks a large quantity and a low price but the second firm enters anyway.

- a. Use these numbers to draw two figures, one like Figure 12.7 and a second like Figure 12.8. Provide a complete set of numbers, and briefly explain how you got them. Label any curves that you draw, and identify the relevant points on your graph.

For the first figure, the prices are given above. There should be a constant long-run average cost curve on the graph. The insecure monopolist will produce 90, the duopoly will produce 100, and the case where the monopolist produces a large quantity but the entrant comes in anyway implies a quantity of 180 (90 for each firm).

Monopolist—	Passive—	Enter—	[Monopolist, \$2,500; Entrant, \$2,500]
		Entrant	
		Don't Enter—	[Monopolist, \$5,600; Entrant, \$0]
	Aggressive—	Enter—	[Monopolist, -\$1,800; Entrant, -\$1,800]
		Entrant	
		Don't Enter—	[Monopolist, \$5,400; Entrant, \$0]

b. Use your second figure to predict the outcome of the entry-deterrence game. What is the price of air travel?

The monopolist will produce a high quantity, and the entrant will not come in. The price of air travel will be \$260.

Chapter 08

1. A three person city is considering a fireworks display. Bertha is willing to pay \$100 for the proposed fireworks display; Marian is willing to pay \$30; Sam is willing to pay \$20. The cost of the fireworks display is \$120.
 - a. Will any single citizen provide the display on his or her own?
No. The \$120 cost exceeds any one of the individual benefits (willingness to pay).
 - b. If the cost of the fireworks display is divided equally among the citizens, will a majority vote in favor of the display?
No. Per person cost ($120 / 3 = 40$) will exceed both Marian's and Sam's willingness to pay, hence, they will vote it down.
 - c. Describe a transaction that would benefit all three citizens.
Bertha makes an agreement with the other two to charge them a \$20 admission each and provides the fireworks display by herself.

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.