

Problem Set #1
PAI 723
Professor David Popp
Fall 2022

Solutions Available Wednesday, September 21

1. Use a supply and demand diagram to analyze each of the following scenarios. Explain briefly. ***Be sure to show how both the equilibrium price and quantity change in each case.***
 - a) As emerging economies grow richer, their citizens are developing tastes for goods not typically consumed in these countries. One such good is chocolate. Show how increasing desire for chocolate in emerging economies affects the market for cocoa beans (a key ingredient for chocolate).
 - b) In recent years, many consumers have expressed concerns about the use of high fructose corn syrup (HFCS) as a sweetener in processed foods. How would increased concerns about HFCS affect corn markets?
 - c) Crackdowns on illegal immigrants reduce the number of migrant workers available to harvest crops. Use a supply and demand diagram to show how these policies affect food prices and the equilibrium quantity.

2. During the last two decades of the 20th century, wages for low-skilled workers fell, while wages for high-skilled workers increased. At the same time, more students went to college and fewer low-skilled workers were employed. Which of the following two explanations is more likely to explain these observations? How can you tell?
 - a) Because more companies are using advanced technology, they are less likely to hire low-skilled workers.
 - b) Rising immigration into the United States increased competition for low-skilled jobs.

3. Like many universities, Great State University (GSU) has a shortage of parking places. Currently, 5,037 parking spaces for students are available on campus. To park on campus, students must purchase a parking sticker. However, at the current price of \$75, significantly more than 5,037 parking stickers were sold. As a result, many students who have parking stickers are nonetheless unable to find parking on campus.
 - a) Consider the market for parking spaces (*NOT the market for stickers, but the actual spaces!*). What does the supply curve look like? Why? Illustrate the supply curve for parking spaces.
 - b) Add a demand curve to your drawing. Currently, more stickers are sold than there are spaces available. Illustrate this scenario.
 - c) Is the market for parking spaces in equilibrium? Why or why not? If it is not, what can be done to alleviate the problem in the short run? Are there other solutions that may work in the long run but not in the short run?

4. To encourage increased growth of grasslands in the Animal Kingdom, their leader, Simba, is considering a subsidy for production of grasslands. Suppose that the market for grasslands can be represented by the following equations:

$$\begin{array}{ll} \text{Demand:} & P = 200 - 1.5Q \\ \text{Supply:} & P = 50 + Q \end{array}$$

where P is the price per acre, and Q represents quantity of grasslands, represented in acres consumed per week.

- a) Calculate the equilibrium price and quantity of grasslands before the subsidy.
- b) To encourage grassland production, Simba announces a price floor of \$140 per acre. With this new price floor, what will be the new quantity of grassland consumed in the Animal Kingdom?
- c) Illustrate your answers to (a) and (b) on a graph. Using this graph, calculate the consumer surplus and producer surplus at the initial equilibrium price and quantity from part (a).
- d) Calculate the new consumer surplus and producer surplus with the price floor of \$140 per acre (part b).
- e) How does the total consumer and producer surplus in part (c) compare to the total consumer and producer surplus in part (d)? What explains the difference in these two figures?
- f) Suppose that the government supports the \$140 per acre price by purchasing any excess grassland that producers make available but are unable to sell to other animals. How many acres of grassland must the government buy?