

KEY

Instructions: This is a team assignment, so turn in one paper per team. Due 9/24/19.

1. (10 pts.) The Lexington Legends, a minor-league baseball team, approach you for advice. They are wondering about their pricing strategy. Currently they charge \$10 per ticket for admission, and allow patrons to sit anywhere they want. They have observed that some fans come several hours before game time, and grab the best seats behind home plate and close to the field. Other fans arrive later and have to sit in the less desirable bleacher seats in the outfield. All of the 500 seats behind home plate fill up every night, but usually most of the 2000 outfield seats go unsold. On an average night, total attendance is 800.

- a. You propose an experiment to determine own-price elasticity of demand for the good seats behind home plate. When you raise the price of those prime tickets to \$20 but keep general admission tickets constant at \$10, only 400 patrons buy the good seats and the other 100 still buy tickets but sit in the bleachers with the 300 people who sat there under the old pricing scheme. Calculate own-price elasticity of demand for prime seating behind home plate. (Assume that quantity demanded for these seats was 800 when  $P = \$10$ .)

$$E_{X, P_X} = - \frac{\% \Delta X_D}{\% \Delta P_X} = - \frac{\frac{X_1 - X_0}{\frac{1}{2}(X_1 + X_0)}}{\frac{P_1 - P_0}{\frac{1}{2}(P_1 + P_0)}} = - \frac{\frac{400 - 800}{\frac{1}{2}(400 + 800)}}{\frac{20 - 10}{\frac{1}{2}(20 + 10)}} = - \frac{\frac{400}{600}}{\frac{10}{15}} = 1$$

unitary elasticity of demand  
 for the prime seating.

- b. After several weeks under the new pricing policy, you decide to try another experiment. You suggest lowering the price of bleacher seats from \$10 to \$5. When you do that, you find that ticket sales for the cheap seats increase from 400 to 1200. Calculate own-price elasticity of demand for bleacher seats.

$$E_{X, P_X} = - \frac{\frac{1200 - 400}{\frac{1}{2}(1200 + 400)}}{\frac{5 - 10}{\frac{1}{2}(5 + 10)}} = - \frac{\frac{800}{800}}{\frac{5}{7.5}} = 1.5$$

demand is elastic for bleacher seats

- c. Briefly discuss the implications of these price changes and your calculated own-price elasticities for the club's total revenues.

Unitary elasticity usually means that a given relative change in price results in an equal and opposite relative change in quantity demanded, so total revenue doesn't change. In this case, however, since the capacity of prime seats is capped at 500, and since those customers who don't get prime seats when the price is \$10 happily spill over into the bleacher seats in the outfield, your revenue from prime seats increases. 500 tickets at \$10 per ticket yields \$5000, while 400 tickets at \$20 yields \$8000. If you are selling 400 tickets at \$10 each in the bleachers, total revenue is \$4000. Lowering price to \$5 increases ticket sales to 1200, increasing revenue from the bleacher seats to \$6000. Lowering price when demand is elastic increases total revenue.

2. (5pts.) In Somerset, KY and in Elkhart, IN, the local economies suffer when the economy stagnates and household incomes fall. The major manufacturing sector in Somerset is houseboats, and in Elkhart is recreational vehicles. Some local retailers like Dollar Store and Dollar General, do quite well during these economic downturns. Using elasticity concepts, explain why this might be the case.

$$E_{X, \text{Income}} = \frac{\% \Delta X_D}{\% \Delta \text{Income}}$$

$$E_{X, I} > 0 \Rightarrow \text{normal good}$$

$$E_{X, I} > 1 \Rightarrow \text{luxury}$$

$$0 < E_{X, I} < 1 \Rightarrow \text{necessity}$$

$$E_{X, I} < 0 \Rightarrow \text{inferior good}$$

Houseboats and RV's are

luxury goods, i.e.  $E_{X, I} > 1$ .

A small decline in household incomes will lead to a big decline in the demand for houseboats and RV's.

The houseboat and RV sectors will suffer in an economic downturn. Many goods sold at DS and DG are necessities and many others are inferior goods. As incomes fall, households flock to these stores.

3. (5 pts.) You have been promoted to be brand manager for Pepsico-Frito/Lay's Rold Gold Pretzels. You know that prices of other products affect sales of Rold Gold Pretzels. What types of numbers would you expect to observe when you calculate cross-price elasticities between Rold Gold Pretzel sales and the prices of Frito-Lay potato chips, Snyder's pretzels, Diet Pepsi, and Pepsico's instant Quaker Oatmeal?

Cross-price elasticity measures the substitute/complement relationship that exists between two goods. Positive cross-price elasticities indicate that the two goods are substitutes and negative cross-price elasticities indicate that the two goods are complements. A zero cross-price elasticity indicates that the two goods are unrelated in demand. The magnitude of the number indicates the strength of the substitute/complement relationship. Different brands of pretzels are likely to be close substitutes, so we would expect a large positive number for Rold Gold and Snyder's pretzels. Lay's potato chips are a different salty snack, so we would expect a smaller positive number for Lay's potato chips and Rold Gold pretzels. Salty snacks often trigger thirst, so Diet Pepsi and Rold Gold pretzels are likely to be complements, and we would expect a negative number. And since oatmeal is usually consumed at breakfast and is not likely connected in demand with pretzels, we would expect a zero cross-price elasticity.