> 3. The demand for Wanderlust Travel Services (X) is estimated to be Qdx = 22,000 - 2.5Px + 4Py - 1M + 1.5Ax, where Ax represents the amount of advertising spent on X and the other variables have their usual interpretations. Suppose the price of good X is $ 450, good Y sells for $ 40, the company utilizes 3,000 units of advertising, and consumer income is $ 20,000.
>
> a. Calculate the own price elasticity of demand at these values of prices, income, and advertising.
>
> $Qdx = 22,000 - 2.5Px + 4Py - 1M + 1.5Ax$
> $=> Qdx = 22,000 - 2.5 * \$450 + 4 * \$40 - \$20,000 + 1.5 * 3,000$
> $=> Qdx = 5,535$
>
> and $PED = \frac{\partial Q}{\partial P} \times \frac{P}{Q} = -2.5 \times \frac{450}{5535} = -0.203$
>
> b. Is demand elastic, inelastic, or unitary elastic?
>
> |PED| has to be examined.
>
> | |PED| | Demand | Comment |
> |---|---|---|
> | < 1 | Inelastic | Consumers are not very responsive to price change. |
> | > 1 | Elastic | Consumers are responsive to price changes. |
> | = 0 | Unitary elastic | Intermediate case. |
> | ∞ | Perfectly elastic | Infinitely responsive |
> | 0 | Perfectly inelastic | Totally unresponsive |
>
> Because the |PED| < 1, the demand is thus inelastic.
>
> c. How will your answers to parts a and b change if the price of Y increases to $ 50?
>
> $Qdx = 22,000 - 2.5 * \$450 + 4 * \$50 - \$20,000 + 1.5 * 3,000$
> $=> Qdx = 5,575$
>
> and $PED = \frac{\partial Q}{\partial P} \times \frac{P}{Q} = -2.5 \times \frac{450}{5575} = -0.202$
>
> Because the |PED| < 1, the demand remains inelastic.
>
> The change of product Y price up from $40 to $50 incur a marginal change to the Qdx and PED. The demand remains inelastic.

b. As demand is inelastic, increase in price will decrease the revenue, as the change in price will be lower than change in quantity. So, the price should not be increased.

c. If there is a perfect competition, marginal revenue equals marginal cost and price
MR = MC = P = $264.
QX = 22,000 – 2.5*264 + 160 – 20,000 + 4,500 = 6000 units
An economic measure of consumer satisfaction, which is calculated by analyzing the difference between what consumers are willing to pay for a good or service relative to its market price. A consumer surplus occurs when the consumer is willing to pay more for a given product than the current market price.
Px(Q = 0) = (22,000 + 4PY – M + 1.5AX)/2.5 = (22,000 + 160 — 20,000 + 4,500)/2.5 = 6,660/2.5 = $2664