

4.7 - Elasticity of Demand

Economists study relationships between price changes, demand and revenues using logarithm derivatives and relative rates of change.

Within this application setting, we examine the elasticity through the following formula:

$$E(p) = - \frac{p f'(p)}{f(p)} \quad (\text{notice that elasticity is a function of } p).$$

If $E(p) > 1 \Rightarrow$ **elastic** (we can ascertain that demand is sensitive)

If $0 < E(p) < 1 \Rightarrow$ **inelastic** (we can ascertain that demand is sensitive)

If $E(p) = 1 \Rightarrow$ **unit elasticity** (change in price \rightarrow same change in demand)

Ex: Given $x = f(p) = 10,000 - 500p$, find the elasticity of demand, in general, and then find and interpret each of the following:

a. $E(4)$

b. $E(15)$