

The Lerner Index

$$\text{Recall } MR = P + \frac{\Delta P}{\Delta Q} Q$$

We know firms π max where $MR = MC$

$$\Rightarrow MR = P + \frac{\Delta P}{\Delta Q} Q = MC$$

Now, using a math trick, we multiply the equation by one, or $\frac{P}{P}$

$$\Rightarrow P + \left(\frac{\Delta P}{\Delta Q}\right) \cdot \left(\frac{P}{P}\right) Q = MC$$

Rewriting,

$$P + \underbrace{\left(\frac{\Delta P}{\Delta Q} \cdot \frac{Q}{P}\right)} \cdot P = MC$$

This is the inverse E^d , [$1/E^d$]
from chapter 2!

substituting,

$$P + \frac{1}{E^d} \cdot P = MC$$

Rearranging,

$$P - MC = -\left(\frac{1}{E^d}\right) \cdot P$$

$$\boxed{= \frac{P - MC}{P} = -\frac{1}{E^d}}$$

This ranges from 0 to 1. Think about what happens for a perfectly comp. firm where demand equals price. Then $E^d = \infty$ so $-\frac{1}{E^d} = 0 \Rightarrow$ there is no markup. This makes sense as if a PC firm increased their price at all they'd lose their business.

Q: what does the Lerner index / markup look like for firms w/ more inelastic demand?