Profit Maximization & Competitive Supply

- Profits, \( \pi(q) = TR(q) - TC(q) \)
- Effect of Higher output on \( \pi \)
  \[
  \frac{d\pi}{dq} = \frac{dTR}{dq} - \frac{dTC}{dq} = MR(q) - MC(q)
  \]
- \( \pi \) - Maximization – in general
  \[
  \frac{d\pi}{dq} = MR(q) - MC(q) = 0
  \]
  or \( MR(q) = MC(q) \)

- Under Competition:
  \( TR(q) = Pq \), \( MR(q) = P \)
- \( \pi \) - Maximization under Competition:
  \( MC(q) = P \)

- Long Run Competitive Equilibrium
  (With no Inelastically Supplied Inputs):
  \( P^* = Min \text{ } ATC \)