Profit Maximization & Competitive Supply

• Profits, \( \pi(q) = TR(q) - TC(q) \)

• Effect of Higher output on \( \pi \)
  \[
  \frac{\Delta \pi}{\Delta q} = \frac{\Delta TR}{\Delta q} - \frac{\Delta TC}{\Delta q} = MR(q) - MC(q)
  \]

• \( \pi \) - Maximization – in general
  \[
  \frac{\Delta \pi}{\Delta q} = MR(q) - MC(q) = 0
  \]
  or \( MR(q) = MC(q) \)

• Under Competition:
  \[
  TR(q) = Pq, \quad MR(q) = P
  \]

• \( \pi \) - Maximization under Competition:
  \[
  MC(q) = P
  \]

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