

Cost Function Summary

(1) Total cost, $TC(Q)$:

Total cost of producing Q units in the minimum cost way

Example:

$$TC(Q) = 2000 + 10 * Q^2$$

(2) Average cost, $AC(Q)$:

Average cost of producing Q units:

$$AC(Q) = \frac{TC(Q)}{Q}$$

Example:

$$AC(Q) = \frac{2000 + 10 * Q^2}{Q}$$

$$AC(Q) = \frac{2000}{Q} + 10Q$$

Also shows returns to scale:

Flat AC: Constant returns to scale

Rising AC: Diminishing returns to scale

Falling AC: Increasing returns to scale

(3) Marginal cost, $MC(Q)$:

Incremental cost of producing one more unit:

$$MC = \frac{\Delta TC(Q)}{\Delta Q}$$

Example:

Q	TC(Q)	TC	MC
0	$2000 + 10 * 0^2$	2000	---
1	$2000 + 10 * 1^2$	2010	10
2	$2000 + 10 * 2^2$	2040	30

Daily exercise on Google Classroom