BUSINESS TERMS

Fixed cost. The cost of production that is independent of amount produced.

Variable cost. The cost of production that is dependent on amount produced.

Cost. This is the total cost of production.

Linear cost model. Let x be the number of units produced, m the cost per unit, b the fixed cost, and $C(x)$ the cost of production. A linear cost model states

$$\text{Variable cost} = (\text{cost per unit}) \times (\text{number of units produced}) = mx$$

and

$$C(x) = (\text{variable cost}) + (\text{fixed cost}) = mx + b.$$

Linear Revenue. Let x be the number of units sold, p the price per unit, and Then

$$R(x) = px$$

is the revenue function.

Linear Profit. Let $C(x)$ and $R(x)$ be given as above. Assume the number of units sold equals the number of units produced. Then

$$P(x) = (\text{revenue}) - (\text{cost}) = R(x) - C(x)$$

is the profit made from selling and producing x units.

Break even quantity. Let x be the number of units sold and produced, and is such that $P(x) = R(x) - C(x) = 0$. Then x is called a break even quantity.

Demand equation If x is the number of units produced and sold by the entire industry during a given time period and $p = -cx + d$ for some $c > 0$ is the price of the xth unit sold, then the equation $p = -cx + d$ is the demand equation.

Supply equation. If p is a function of x and gives the price p necessary for suppliers to make available x units to the market, the equation $p = p(x)$ is called the supply equation.

Equilibrium point 1. If $p = p(x)$ is the supply equation and $p = -cx + d$ for some $c > 0$ is the demand equation, the equilibrium point is given by the point (x, p) satisfying $p(x) = -cx + d$. The x-coordinate of the equilibrium point is called the equilibrium quantity and the p-coordinate of the point is called the equilibrium price.

Equilibrium point 2. I.e., the equilibrium point is where the price and demand are equal. The equilibrium quantity is the quantity such that they are equal, and the equilibrium price is the price such that they are equal.

Linear Model. A mathematical model that requires linear dependence for the dependent variable on the independent variable.

Quadratic model. A mathematical model that requires quadratic dependence for the dependent variable on the independent variable.