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Paper Managerial Economics

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Exam Final term

Q#1 What is cost? Differentiate the following

Answer In managerial economics, cost is normally considered from the Producer's or firm's point of view. In producing a commodity or service, a firm has to employ an aggregate of various factors of production such as land, labour capital and entrepreneurship. These factors are to be compensated by the firm for their efforts or contribution made in producing the commodity. Thus the cost of production of a commodity is the aggregate of price paid for the factors of production used in producing the commodity.

(a) Fixed and Variable costs:-

Fixed costs are the amount spent by the firm on fixed inputs in the short run. Fixed costs are, thus, those costs which remain constant, irrespective of the level of output. These costs remain unchanged even the output is nil. Fixed costs, therefore, are known as supplementary costs or overhead costs.

Some of the fixed costs are:

• Payments of rent for building

- Interest paid on capital.
- Depreciation and maintenance allowances.
- Administrative expenses.

Variable costs are those costs that are incurred on various factors. These factors vary directly with the level of output. In other words, variable costs are those costs which rise when output expands and fall when output contracts. When output is nil, they are reduced to zero.

The variable cost includes:

- Price of raw materials,
- Wages of labour,
- Fuel and petrol charge,
- Excise duties, sales tax.

(b) Direct and indirect cost:

Direct cost are expenses that a company can easily connect to a specific "cost object", which may be a product, department or project. This can include software, equipment and raw materials. It can also include labor, assuming the labor is specific to the product, department or project. For example, if an employee is hired to work on project, either exclusively or for an assigned number of hours, their labor on that project is a direct cost. If your company develops software and needs specific assets, such as purchased frameworks or development applications, those are direct costs. Labor and direct materials constitute the majority of direct costs. For example, to create its product, an appliance maker requires steel, electronic components and other raw materials.

Two popular ways of tracking these costs, depending on when your company uses materials in production, include last-in first-out (LIFO) or first-in, first-out (FIFO). This can be helpful if the costs of your materials fluctuate in the course of production. Usually, most direct costs are variable. Smartphone hard ware, for example, is a direct, variable cost because its production depends on the number of units ordered. A notable exception is direct labor costs, which usually remain constant throughout the year. Typically, an employee's wages do not increase or decrease in direct relation to the number of products produced.

Direct cost include:

- Manufacturing supplies
- Equipment
- Raw materials
- Labor costs
- Other production costs

Indirect costs extend beyond the expenses you incur creating a product to include the costs involved with maintaining and running a company. These overhead costs are the ones left over after direct costs have been computed.

The materials and supplies needed for a company's day-to-day operations are examples of indirect costs. While these items contribute to the company as a whole, they are not assigned to the creation of any one service.

Indirect costs include supplies, utilities, office equipment rental, desktop computers and cell phones. Much like direct costs, indirect costs can be both fixed and variable. Fixed indirect costs include things like rent. Variable costs include the fluctuating costs of electricity and gas.

Indirect costs include:

- Utilities
- Office supplies
- Office technology
- Marketing campaigns
- Accounting and payroll services
- Employee benefit and Perk programs
- Insurance costs.

(c) **Explicit and Implicit cost:**

Explicit costs refer to the actual money outlay or out of pocket expenditure of the firm to buy or hire the productive resources it needs in the process of production. It is referred to as out-of-pocket costs for example, cost of raw materials; wages and salaries; power charges; rent of business or factory premises; interest payments of factory premises etc. while implicit cost is not directly incurred by the firm through market transaction. But nevertheless are to be reckoned in the measurement of total money costs of production. These are to be imputed or estimated on the basis of opportunity cost, i.e., from what the factors

by the firm it self could earn in their best alternative employment.

(d) Actual and Opportunity cost:

An actual amount paid or incurred, as opposed to estimated cost or standard cost. In contracting, actual costs amount includes direct labor, direct material, and other direct charges. In other words, manager go back to the source of the costs (cost objects) like labor and materials. Managers can analyze how many hours of manufacturing time a product require to calculate the actual costs of producing that product.

Since the real production cost can not be measured in absolute sense, the concept of opportunity cost is evolved to measure it in an objective sense. The concept of opportunity cost is based on the scarcity and versatility characteristics of productive resources. It is the most fundamental concept in economics.

Importance of the concept of opportunity cost:

- Determination of Relative Price of Goods.
- Determination of Normal Remuneration to a factor.
- Decision Making and Efficient Resource allocation.



Q#3

(a)

What is Regression Analysis and what is its importance in Managerial Economics?

Answer

The dependence of one variable (dependent variable) upon other variable (independent variable) is called Regression.

Regression analysis, the technique of studying dependence of one variable on one or more variables (explanatory variable) to estimate or predict the average value of dependent variable in term of known or fixed values of independent variables.

Example (simple regression)

- i consumption of house hold depends on income.
- ii sale of Product dependent on quality.

Importance in Managerial Economics:

- Regression analysis estimates the relationship that exists, between dependent and explanatory variable.
- Determine the effect of each of explanatory variables on dependent variables, controlling the effects of all explanatory variables.
- Predict value of dependent variable for given value of explanatory variable.
- Having more data, and an understanding

of that data, can help to maximize efficiency and refine processes so that businesses can get the most out of them. Processes that are optimized by statistical data can help businesses work smarter.

Q#3 (b) Estimate the parameters and interpret your results.

Answer Sol:

To find

$$Y = \hat{a} + \hat{b}x$$

Given data

Y	X	$x = x - \bar{x}$	$y = y - \bar{y}$	xy	x^2
25	100	-1183.33	-218.33	258356.43	1400269.88
55	250	-1033.33	-188.33	194607.03	1067770.88
68	500	-783.33	-175.33	137341.24	613605.88
90	800	-483.33	-153.33	74108.98	233607.88
122	1050	-233.33	-121.33	28309.92	54442.88
200	1300	16.67	-43.33	-72231	277.88
280	1650	366.67	36.67	13445.78	134446.88
450	2400	1116.67	206.67	230782.18	1246951.88
900	3500	2216.67	656.67	1455620.68	4913625.88

$\sum Y = 2190$ $\sum X = 11550$

$\sum xy = 239184993$ $\sum x^2 = 9664999.92$

$$\bar{X} = \frac{\sum x}{n} = \frac{11550}{9} = 1283.33$$

$$\bar{X} = 1283.33$$

$$\bar{Y} = \frac{\sum Y}{n} = \frac{2190}{9} = 243.33$$

$$\bar{Y} = 243.33$$

$$\sum xy = 239184993$$

$$\sum x^2 = 966499992$$

$$\hat{b} = \frac{\sum xy}{\sum x^2}$$

$$= \frac{2391849.93}{96649999.92}$$

$$\hat{b} = 0.247$$

$$\hat{a} = \bar{Y} - \hat{b} \bar{x}$$

$$\hat{a} = 243.33 - (0.247)(1283.33)$$

$$= 243.33 - 3167.98$$

$$\hat{a} = -73.65$$

$$Y = \hat{a} + \hat{b}x$$

$$Y = -73.65 + (0.247)x$$

Interpretation

1) Both the variables X and Y have positive relationship between them.

2) Increase in one unit of x will increase 0.247 units in Y .

Q#2
(a)

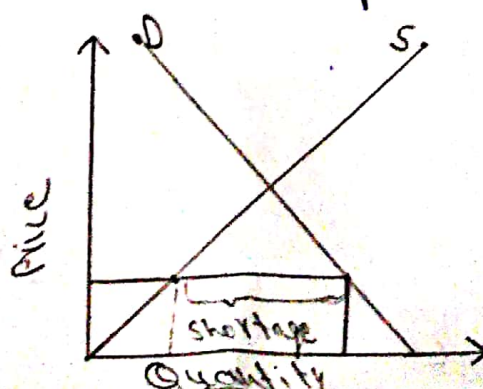
Suppose there is short of face mask in the market during this pandemic situation. What will be the effect of short of supply on the market equilibrium?

Answer

In the occurrence of global pandemic COVID-19 a shortage ~~also~~ has occurred of face mask which we could also call an excess in demand. The amount by which the quantity of good demanded by consumer is greater than the quantity supplied by producers.

Equilibrium is the important to create balanced market. If market is at equilibrium price and quantity then there is no reason to move away from equilibrium point. Because quantity supplied and quantity demanded is balanced. If market is not equilibrium, then economic pressure arise to move market towards equilibrium price and quantity, this happens due to more demand than the market is supplying.

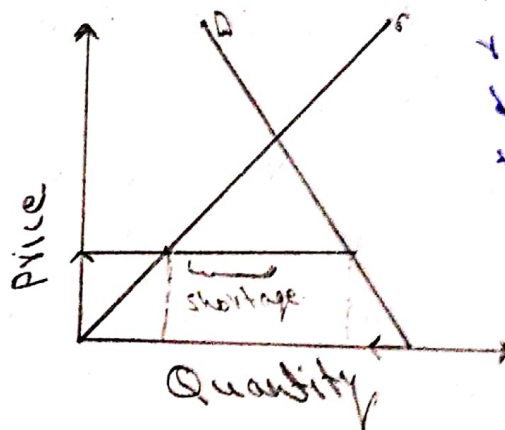
Graph:



In this situation, eager face mask buyers will mob the stores in which they are available, only to find many stores running short of face mask as the quantity demanded of face mask by consumer is greater than the quantity supplied by producers.

The stores recognize that they have an opportunity to make high profit by selling what amount of facemask they have at higher price.

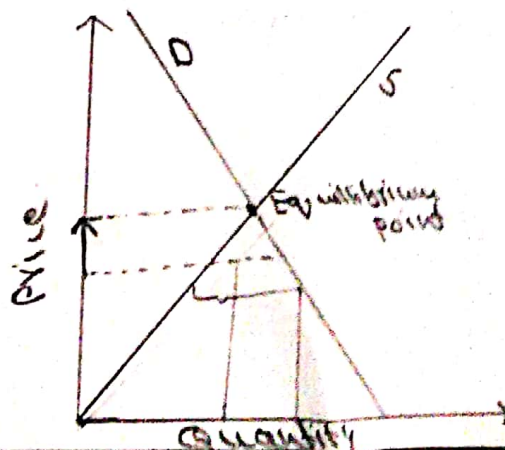
Market Equilibrium:



Facing shortage, sellers raise the price causing demand to fall and supply to rise, which will reduce shortage.

The price increase will stimulate quantity supplied and reduce the quantity demanded. As this occurs, shortage will decrease.

The price will continue to rise until market will reach equilibrium.



Price continue to rise until market reaches equilibrium.

Q#2 What are variables and also differentiate between dependent and independent variables with examples?

Answer Variable: A characteristic, number or quantity that increase or decrease over time or takes different values in different situation.

There are two types of variable

- (i) Dependent variable
- (ii) Independent variable

Independent variable:

1. If two variables are involved, variable that is basic of estimation is called independent variable.
2. The independent variable is called explanatory, regressor and exogenous variable.
3. In regression analysis, independent variable is denoted by 'X'

Dependent variable

1. A variable whose value is to be estimated is called dependent variable.
2. The dependent variable is known as explained variable, predicted response and endogenous variable.
3. Dependent variable is denoted by 'Y'

Examples:

1. We want to assess the association

between total cholesterol and body mass index (BMI) where total cholesterol is dependent variable and BMI is independent variable

$$Y = \text{Total cholesterol}, X = \text{BMI}$$

2. Consider consumption as dependent variable (Y), and income, house hold size and remittances as independent variables (X)

