Tools For Economic Analysis

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Introduction:

- In this section we will describe the use of some important mathematical tools of analysis frequently used in economic and business decision making. Economic theories are formulated to explain different phenomenon. They try to explain the relationship between two or more variables. While formulating theories a number of tools are used by experts in this field. The tools of economic analysis are found in the empire of Mathematics. Mathematics is being freely used in modern economic analysis.
- Mathematics is regarded as the second language for the students of economics. Geometry is being increasingly resorted to in order to provide graphically presentation of economic behavior. Diagrams and Graphs provide visual impact and help to understanding and learn economics with interest. A Chinese proverb says “A picture is worth a thousand words”.

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- Modern economists have turned to Calculus, Matrix, Algebra and Derivatives to use them as fundamental tools to express complicated aspects of economic theories and models more exactly and accurately. All these applications of mathematics are significant as a tools and techniques to impart shortness, accuracy and rigor to economic analysis.
- In brief, get used to with the terms such as Functions, Equations, Schedules, Graphs and Formulas. These are the basic tools of economic analysis.

Economic Variables:

- The main aim of economic analysis is to identify the nature of economic variables and determine the level of relationship between two or more related economic variables. An economic variable refers to the any economic quantity whose value changes with a change in its determinants or change in economic activities.

Economic variables can be classified as follows:

1. Dependent Variables: Involve those variables whose values are dependent on the values of other variables. Moreover, the values of these variables are affected by change in the value of other interrelated variables.

2. Independent Variables:

Refer to variables that are independent and are not affected by a change in any other variable. In the earlier example of demand of a product and its price, the demand of the product is a dependent variable, while price of the product is an independent variable.

3. Endogenous Variables:

Refer to variables whose value can be obtained within the model under consideration. For example, the price of a product in the supply and demand model is endogenous. This is because the price of the product is set in response to consumer demand.

4. Exogenous Variables:

Refer to variables whose value is obtained outside the model under consideration. For example, in case of increase in domestic petrol price due to increase in international petrol price, the international petrol price is the exogenous variable.

Basic Tools for Economic Analysis:

1. The Function :-

A function explains the relationship between two or more economic variables. A simple technical term is used to analyze and symbolize a relationship between variables. It is called a function. It indicates how the value of dependent variable depends on the value of independent variables. It also explains how the value of one variable can be found by specifying the value of other variable.

For instance, economist generally links demand for good depends upon its price. It is expressed as $\mathbf{D} = f\ (\mathbf{P})$. Where D = Demand, P = Price and f = Functional relationship.

Functions are classifieds into two type namely explicit function and implicit function. Explicit function is one in which the value of one variable depends on the other in a definite form. For instance, the relationships between demand and price Implicit function is one in which the variables are interdependent.

2. Equations:-

Economic theory is a verbal expression of the functional relationships between economic variables. When the verbal expressions are transformed into algebraic form we get Equations. The term equation is a statement of equality of two expressions or variables. The two expressions of an equation are called the sides of the equation. Equations are used to calculate the value of an unknown variable. An equation specifies the relationship between the dependent and independent variables. Each equation is a concise statement of a particular relation.

For example, the functional relationship between consumption (C) and income (Y) can take different forms.The most simple equation; C = a (Y) states that consumption (C) is related to income (Y). It says nothing about the form that this relation takes.

3. Schedules:-

This is the next item in the kit of intellectual tools. It is one of the techniques used to establish functional relationship . We often use them however in economic analysis, as example of typical economic behavior.

The law of demand can be represented through a demand schedule.

A demand schedule is a tabular representation of different prices of a commodity and its corresponding quantity demanded per unit of time.

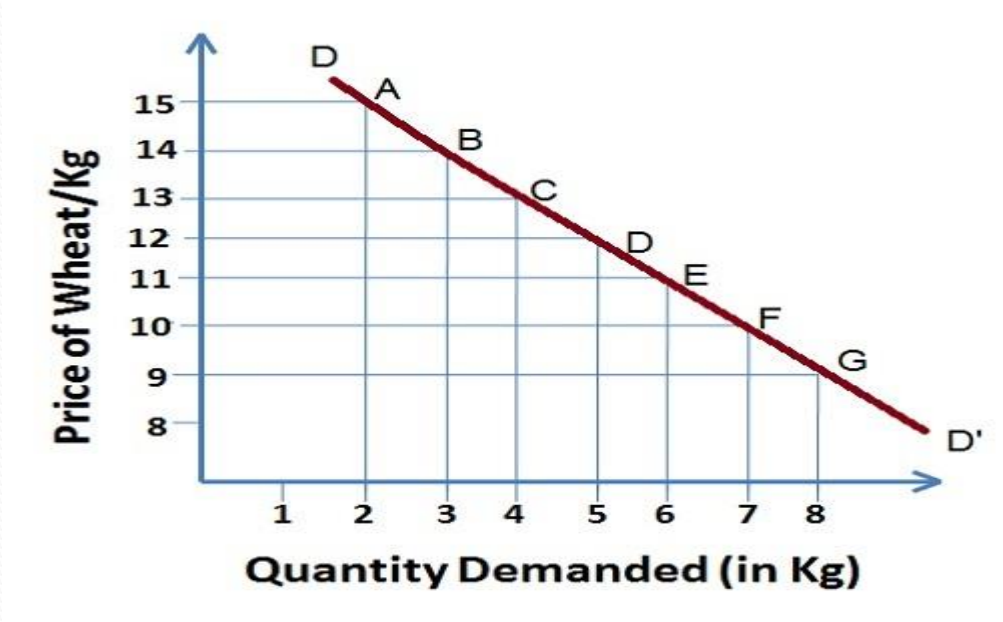
Demand Schedule for Pen

Price per unit (in ₹)	Qty .of Pens Demanded
12	10
10	20
8	30
6	40
4	50
2	60

4. Graphs:-

A graph or a diagram presents the relationship between two or more sets of data or variables that are related to one another. Graph is most commonly used tool in modern economics. Graph depicts the functional relationship between two or more economic variables. The use of graph provides a better understanding of the economic generalizations.

Graph presents a visual picture of an abstract idea. Also it is useful for accuracy and precision.



5. Formulas:-

Microeconomics in the study of relationship between resources and production of goods to satisfy wants. A change in one input alters the output and thus changes the utility to the consumer. This causal relationship between related variables can be expressed through formulas.

For example, there are basic microeconomics formulas are given bellow:-

$$\mathbf{TC = TFC + TVC}$$

$$\mathbf{AC = AFC + AVC}$$

Thank You…!