Demand estimation for major consumer durable and non-durable products.

Demand estimation/ Demand forecasting:

- Demand forecasting is a process of predicting the demand for an organization's products or services in a specified time period in the future.
- The information regarding future demand is essential for planning and scheduling production, purchase of raw materials, acquisition of finance and advertising.
- It is much more important where a large-scale production is being planned and production involves a long gestation period.

According to **Evan J. Douglas**, "Demand estimation (forecasting) may be defined as a process of finding values for demand in future time periods."

Durable Products: The products that can be used for a long time and that people do not buy very often, such as televisions and cars are called durables.

Non-Durable Products: The products that do not last for a long time and that people buy often, such as bread, butter, medicine, fruits, etc. are called non-durables. These are also called single use consumer goods or perishable consumer goods.

Demand forecasting techniques.

Qualitative techniques:

- Qualitative techniques are related to collection of data on the buying behaviour of consumers from experts or through conducting surveys.
- These are based on experience, judgment, intuition, conjecture, etc.
- These techniques are generally used to make short-term forecasts of demand.

- Qualitative techniques are especially useful in situations when historical data is not available; for example, introduction of a new product or service.
- Qualitative techniques include Survey Methods and Opinion Polls.

Quantitative techniques:

- Quantitative techniques are related to statistical methods.
- In these techniques, demand is forecasted based on historical data.
- These techniques are generally used to make long-term forecasts of demand.
- Statistical methods are cost effective and reliable as the element of subjectivity is minimum in these methods.
- Quantitative techniques include Time Series analysis, Smoothing techniques, Barometric methods, Econometric methods, Regression Analysis etc.

Qualitative techniques

Survey methods:

Survey methods are the most commonly used methods of forecasting demand in the short run. These methods rely on the future purchase plans of consumers and their intentions to anticipate demand.

- **Complete Enumeration Method**: In this method, almost all potential users of the product are contacted and are asked about their future plan of purchasing the product in question. This method is also referred to as the census method of demand forecasting.
- **Sample Survey Method:** Under this method, only a few potential consumers and users selected from the relevant market through a sampling method are surveyed. Method of

survey may be direct interview or mailed questionnaire to the sample consumers.

Opinion polls:

Opinion poll methods involve taking the opinion of those who possess knowledge of market trends, such as sales representatives, marketing experts, and consultants.

- **Expert-Opinion Method:** It is one of the most widely used and influential forecasting technique where the opinions and intuition of management is utilized. The executive uses his own anticipation and what he hears from others. Outside experts are also consulted and the other executive heads are also required to give their opinion in the matter.
- **Delphi Method:** Delphi method of demand forecasting is an extension of the simple expert opinion poll method. The experts are provided information on estimates of forecasts of other experts along with the underlying assumptions. The experts may revise estimates in the light of forecasts made by other experts. The consensus of experts about the forecasts constitutes the final-forecast.
- **Market studies and experiments**: This method is also referred to as market experiment method. In this method, organisations initially select certain aspects of a market such as population, income levels, cultural and social background, occupational distribution, and consumers’ tastes and preferences. Among all these aspects, one aspect is selected and its effect on demand is determined while keeping all other aspects constant. The controlled variable is changed over time and subsequent changes in the demand over a period of time are recorded. Based on the data collected, the demand for a product in the future is assessed.

<u>Quantitative techniques:</u>

Time series analysis:

Time series analysis or trend projection method is one of the most popular methods used by organisations for the prediction of demand in the long run. The term time series refers to a sequential order of values of a variable (called trend) at equal time intervals.

Smoothing techniques: In cases where the time series lacks significant trends, smoothing techniques can be used for demand forecasting. Smoothing techniques are used to eliminate a random variation from the historical demand.

Barometric methods: Barometric methods are used to speculate the future trends based on current developments. Barometric methods make use of economic and statistical indicators, which serve as barometers of economic change.

Econometric methods: Econometric methods make use of statistical tools combined with economic theories to assess various economic variables (for example, price change, income level of consumers, changes in economic policies, etc. An econometric model for demand forecasting could be single equation regression analysis or a system of simultaneous equations.

Regression analysis: The regression analysis method for demand forecasting measures the relationship between two variables. Using regression analysis a relationship is established between the dependent (quantity demanded) and independent variable (income of the consumer, price of related goods, advertisements, etc).

Factors affecting demand forecasting:

Economic conditions: Demand forecasting can be affected by the changing price levels, national and per capita income, consumption pattern of consumers, saving and investment practices, employment level, of an economy.

Condition of the industry: Concentration of an industry increases the level of competition, which directly affects the demand for products and services of different organisations in the industry.

Condition of a firm: The internal condition of a business firm also affects demand forecasting. It is affected by plant capacity, product quality, product price, advertising and distribution policies, financial policies, etc.

Market conditions: Changes in market conditions, such as change in the prices of goods; change in consumers' expectations, tastes and preferences; change in the prices of related goods; and change in the income level of consumers also influence the demand forecasting.

Sociological conditions: Sociological conditions, such as size and density of population, age group, size of family, family life cycle, education level, family income, social awareness, etc., also impact demand forecasts of an organisation.

Psychological conditions: Psychological conditions, such as changes in consumer attitude, habits, fashion, lifestyle, perception, cultural and religious beliefs, etc. affect demand forecast of an organisation to a large extent.

Foreign trade policy: The demand for export-import goods gets directly affected by changes in factors, such as import and export policy, foreign trade regulations, foreign relations etc.

Objectives or Need for demand forecasting:

- Producing the desired output
- Assessing the probable demand
- Forecasting sales figures
- Better control

- Controlling inventory
- Assessing manpower requirement
- Ensuring stability
- Planning import and export policies

Steps in demand forecasting:

- Specifying the objective
- Determining the time perspective
- Selecting the method for forecasting
- Collecting and adjusting data
- Interpreting the outcomes