

Unit: 02 Demand Forecasting

Demand Forecasting -Meaning, categories, purpose of forecasting. Steps involved in demand forecasting, determining scope of a forecasting exercise, determinants of demand forecasting,

Methods of demand forecasting-

Opinion poll method: 1) Consumers' survey methods 2) Sales force opinion methods 3) Experts' opinion method.

Statistical Methods: 1) trends projection methods a) Fitting trend line by observation b) Least square liner regression c) Time series analysis d) Moving average and annual difference e) Exponential Smoothing f) ARIMA method

Introduction- Meaning:

In Literary sense forecasting mean prediction. Forecasting may be defined as a technique of translating past experience in to prediction of things to come. The demand forecasting is estimation of futures demand.

Definition:

Demand Forecasting refers to the process of predicting the future demand for the firm's product.

Due to the dynamic nature of marketing phenomenon, demand forecasting has become a continuous process and requires regular monitoring of the situation.

Categories: Types of Forecasting

There are two types of forecasting:

- Based on Economy
- Based on the time period

1. Based on Economy

There are three types of forecasting based on the economy:

- Macro-level forecasting:** It deals with the general economic environment relating to the economy as measured by the Index of Industrial Production(IIP), national income and general level of employment, etc.
- Industry level forecasting:** Industry level forecasting deals with the demand for the industry's products as a whole. For example demand for cement in India, demand for clothes in India, etc.

- iii. **Firm-level forecasting:** It means forecasting the demand for a particular firm's product. For example, demand for Birla cement, demand for Raymond clothes, etc.

2. Based on the Time Period

Forecasting based on time may be short-term forecasting and long-term forecasting

- i. **Short-term forecasting:** It covers a short period of time, depending upon the nature of the industry. It is done generally for six months or less than one year. Short-term forecasting is generally useful in tactical decisions.
- ii. **Long-term forecasting casting:** Long-term forecasts are for a longer period of time say, two to five years or more. It gives information for major strategic decisions of the firm. For example, expansion of plant capacity, opening a new unit of business, etc.

Purpose of forecasting (Objectives and Importance):

Short Terms Objectives:

1. **Formulation of production policy: helps in formulating suitable production policy- no gap between demand and supply-**
 - A. **Regular supply of material:** regular and continuous supply – to control inventory.
 - B. **Maximum utilization of machine:** maximum capacity.
 - C. **Regular availability of labour:** properly arranged.
2. **Price policy formulation:** appropriate price policy- not fluctuates too much.
3. **Proper control of sales:** region wise- later on become the basis to evaluate.
4. **Arrangement of finance:** determine the financial needs- minimise cost of procuring finance.

Long Term Objectives: (More than a year)

1. **To decide about the production capacity:** size of the plants- desired capacity.
2. **Labour requirements:** best labour facility.
3. **Production planning:** long term finance planning- some policy decisions- overall success.

Importance:

1. **Management decision:** plan capacity- raw material- space and building needs- labour- capital- minimum inventory.
2. **Evaluation:** evaluating performance.
3. **Quality and quantity controls:** finished goods in proper quality and quantity.
4. **Financial estimates:** helps to get funds on reasonable terms- sufficient funds.

5. **Avoiding under and over production:** useful for old and new firms- large scale production- long gestation period.
6. **Guideline for future:** Automobile industry- tyre industry.
7. **Importance for the Govt:** to determine imports and exports- planning in international trade.

Steps involved in demand forecasting:

1. To identify and clearly state the objectives of forecasting- short or long term- market share or industry.
2. Select appropriate methods.
3. To identifying affecting variables.
4. To determine the most probable relationship between dependent and independent variable.
5. Gather relevant data or approximation to relevant data and express them in appropriate forms.
6. Prepare the forecast and interpret the result- interpretation in more important.
7. Ratio of the company sales- continue- or change.
8. Forecasting physical terms- converted in to value terms.
9. Product groups- than broken in to brands- size- colour- labels.
10. May be made annual base – broken in to month wise- week wise.
11. For new product- data month wise break up- some survey- product line divided in to product wise.
12. Sales may change over time by constant proportion rather than amount.

Determining scope of a forecasting exercise:

The scope of demand forecasting depends upon the operated area of the firm, present as well as what is proposed in the future. Forecasting can be at an international level if the area of operation is international. If the firm supplies its products and services in the local market then forecasting will be at local level.

The scope should be decided considering the time and cost involved in relation to the benefit of the information acquired through the study of demand. Cost of forecasting and benefit flows from such forecasting should be in a balanced manner.

Determinants of demand forecasting:

For making a good forecast, it is essential to consider the various factors governing demand forecasting. These factors are summarized as follows.

1. Prevailing business conditions: While preparing demand forecast it becomes necessary to study the general economic conditions very carefully. These include the price level changes, change in national income, per-capita income, consumption pattern, savings and investment habits, employment etc.

2. Conditions within the industry: Every business enterprise is only a unit of a particular industry. Sales of that business enterprise are only a part of the total sales of that industry. Therefore, while preparing demand forecasts for a particular business enterprise, it becomes necessary to study the changes in the demand of the whole industry, number of units within the industry, design and quality of product, price policy, competition within the industry etc.

3. Conditions within the firm: Internal factors of the firm also affect the demand forecast. These factors include plant capacity of the firm, quality of the product, price of the product, advertising and distribution policies, production policies, financial policies etc.

4. Factors affecting export trade: If a firm is engaged in export trade also it should consider the factors affecting the export trade. These factors include import and export control, terms and conditions of export, exim policy, export conditions, export finance etc.

5. Market behavior: While preparing demand forecast, it is required to consider the market behavior which brings about changes in demand.

6. Sociological conditions: Sociological factors have their own impact on demand forecast of the company. These conditions relate to size of population, density, change in age groups, size of family, family life cycle, level of education, family income, social awareness etc.

7. Psychological conditions: While estimating the demand for the product, it becomes necessary to take into consideration such factors as changes in consumer tastes, habits, fashions, likes and dislikes, attitudes, perception, life styles, cultural and religious beliefs etc.

8. Competitive conditions: The competitive conditions within the industry may change. Competitors may enter into market or go out of market. A demand forecast prepared without considering the activities of competitors may not be correct.

Methods of demand forecasting:

Opinion poll method:

- 1) Consumers' survey methods
- 2) Sales force opinion methods
- 3) Experts' opinion method.

Statistical Methods:

- 1) Trends projection methods
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Consumer Survey method of demand forecasting

The goods and services are made available in the market for consumers. So who better than them can understand the demand for the products? This is what this method is all about.

Demand forecasting through consumer survey could be done through three ways as mentioned below:

- Method of Total Enumeration
- Survey through Sample
- Method of End use

Let's see each of these in detail:

- **Method of Total Enumeration:** When the demand is forecasted on the basis of possible quantities that all the consumers would purchase (in the period of forecast) then it is called as the total enumeration method. In this method the consumers are questioned about their future purchase amounts of product and responses of all of them are taken into consideration by the forecaster.

This method is the most straightforward one because the forecaster simply sums up the possible demand of all the consumers to arrive at the future demand. The demand forecast through this method is likely to be more exact because it is simply recording the data and arriving at the forecast and is free from bias. But if the numbers of consumers are too many then this method would not be viable. This method conjures a lot of time and is dearer. Also care needs to be taken while recording the data as any error here would impact the final conclusion.

Survey through Sample: A sample is a part of the total. In this method the forecaster selects a sample or panel of consumers who would generate sense of the demand for the product. To state in other words the forecaster selects a group of consumers from the total consumers of the product and then carries out the forecast considering the responses given by the sample group. In this method the consumers may be asked questions pertaining to various factors that would impact the demand for the product. These factors would be determinants of demand like the incomes of the consumers, prices of related products, price of the commodity itself and so on.

How is the sample survey done? Direct interviews could be done or the forecaster may prepare detailed questionnaire to generate responses from the consumers. The urgency of forecast and availability of funds also would determine the kind of approach the forecaster would like to go with while conducting sample survey. ***Once the sample survey is done the forecaster would then derive the overall demand for the product on the basis of overall demand of the sample group.***

Sample survey is quite useful in case of new products as it would give direct responses from the end users. The changes in preferences of consumers, impact of promotional activities could also be understood through sample survey. The forecaster need not carry out the survey for total consumers and needs to focus on the sample group only. Though cost friendly and less time consuming this method is subject to certain shortcomings like sampling error and lack of exact answers. The cooperation by the consumers also plays an important role in arriving at the conclusions.

Method of end use: This is yet another method through which demand forecasting could be done. What if the product has more than one use? It means a product may be used as an intermediate product (used in the production of other products), used for final consumption and can also be exported as well as imported. So how is demand forecasted through this method? Here the demand for the intermediate product could be estimated. The demand of exports net of imports could be estimated and demand of final consumption could be predicted. It means that here the *forecast will be done for three components* (for the firms using intermediate products, for the exporters and importers and survey of the end users). This all parts are then added up to arrive at the final forecast.

One of the distinguishing features of this kind of survey is that it provides forecast sector wise because the forecaster gets an idea of demand for the product through various uses since it is carried out by considering multiple uses of the product. The major drawback of this method lies in the requisite of accurate production plan for the coming times by the firms.

2) Sales force opinion methods

Under this method, the salesmen are nearest persons to the customers and are able to judge, their minds and market. They better understand the reactions of the customers to the firms' products and their sales trends. The estimates of the different salesmen are collected and estimates sales are predicted.

These estimates are revised from time to time with changes in sales price, product, designs, publicity programmes, and expected changes in competition, purchasing power, income distribution, employment and population. It makes use of collective wisdom of salesmen, departmental heads and top executives.

Advantages:

1. It is simple, common sense method involving no mathematical calculations.
2. It is based on the first-hand knowledge of salesman and the persons directly connected with sales.
3. This method is particularly useful for sales of new product. It has the salesman's judgment.

Disadvantages:

1. It is a subjective approach.
2. This method can be used only for short-term forecasting.
3. For long-term planning it is not useful.

3 Expert's Opinions:

Under this method expert's opinions are sought from specialists in the field, from inside and outside of the organizations or the organization collects opinions from such specialists; views of expert's published in the newspaper and journals, wholesalers and distributors for the company's products, agencies and professional experts.

These opinions and views are analyzed and deductions are made there from to arrive at the figure of demand forecasts.

Advantages:

1. Forecasts can be done easily and speedily.
2. It is based on expert's views and opinions hence estimates are nearly accurate.
3. The method is suitable where past records of sales are not available.
4. The method is economical because survey is done through collection of the data. The expenses of seeking the opinions and views of experts are much less than the expenses of actual survey.

Dis-advantages:

1. Estimates for a market segment cannot be possible.
2. The reliability of forecasting is always subjective because forecasting is not based on facts.