

8. FORECASTING

In this session

- ▶ using statistics to forecast

Objectives

After this session you will be able to:

- ▶ discuss the importance of forecasting
- ▶ use statistics to forecast
- ▶ describe the cautions required in forecasting

The Future is Good to Know

'Those who do not learn from history will be taught a lesson by it' is an old saying which can be applied to many aspects of life. In this course we have seen that history in the form of statistics can be very useful in forecasting what is likely to occur in the future.

Time Series Forecasting

The way most statistically based forecasts are done in business is with a concept called 'time series analysis'.

In a time series we measure the same variables (for example sales or profit) over and over again at equal time intervals. This could be every day, every week, month or year.

The variables of course are those which if we knew them in advance would be of help in making a business decision. The entire set of values is used to predict the next few values for the next few time periods.

To look at it from another perspective let us say that you have decided to record on a graph your company sales month by month for the last year. What you finish up with is a line showing the ups and downs of your sales over a series of times (months). Hence 'time series'.

Once again, the figures or the graphical presentation resulting from them is of little use to us unless we can see what they mean.

So we look for patterns or trends from which we can make forecasts about the future performance of the product or service under consideration.

We can then go further and if growth seems to be occurring we can further break it down into one of four types of growth commonly referred to in business.

Growth Type	Example
Flat	New TV Set
Linear	Bank Account – Spend Interest
Slow Acceleration	Bank Account – Retain Interest
Fast Acceleration	Venture Capital Investment

This might seem to be going into things a bit too deeply, but if you can forecast the type and speed of growth you can prepare your business resources accordingly.

Smoothing

To make the task of identifying trends even more simple we can draw something called a 'trend line'. Basically this suggests that rather than squint at a series of dots on a page or a line chart which has peaks and troughs, we should try to see where the general trend is heading. This is done by drawing a line as accurately as we can following the general direction of the graph.

You can do this with a pen and a ruler but your statistical computer package will be able to do it for you.

