

Qualitative Forecasting Methods.

[Other Resource]



Various Forecasting Methods

■ Qualitative Methods

- **Market Research.** Market research is used mostly for product research in the sense of looking for new product ideas, like and dislikes about existing products, which competitive products within a particular class are preferred, and so on.
- **Panel Consensus.** In a panel consensus, the idea that two heads are better than one is extrapolated to the idea that a panel of people from a variety of positions can develop a more reliable forecast than a narrow group. Panel forecasts are developed through open meetings with free exchange of idea from all levels of management and individuals.

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Various Forecasting Methods

- Quantitative Methods : Regression.

$$y_i = a + bx_i + e_i$$

where y_i is the dependent variable.

x_i is the independent variable, and

e_i is the residual ; the error in the fit of the model.

$$b = \frac{n \sum_{i=1}^n x_i y_i - \left(\sum_{i=1}^n x_i \right) \left(\sum_{i=1}^n y_i \right)}{n \sum_{i=1}^n x_i^2 - \left(\sum_{i=1}^n x_i \right)^2} = \frac{S_{xy}}{S_{xx}}$$

$$a = \frac{\sum_{i=1}^n y_i - b \sum_{i=1}^n x_i}{n} = \bar{y} - b\bar{x}$$

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Quantitative Techniques

- Quantitative Methods : Weighted Moving Average.

Whereas the simple moving average gives equal weight to each component of moving average database, a weighted moving average allows any weights to be placed on each element, providing, of course, that the sum of all weights equals 1.

$$F_t = w_1 A_{t-1} + w_2 A_{t-2} + \dots + w_n A_{t-n}$$

where w_i = Weight to be given to the actual occurrence for the period $t - n$

n = Total number of periods in the forecast.

$\sum_{i=1}^n w_i = 1$, The sum of all the weight must equal 1.

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Decomposition of a Time Series.

■ Decomposition.

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- A time series can be defined as chronologically ordered data that may contain one or more components of demand : trend, seasonal, cyclical, autocorrelation, and random.
- Decomposition of a time series means identifying and separating the time series data into these components.
- Two types of variation : Additive and Multiplicative.
 1. Additive Seasonal Variation.
Forecasting including trend and seasonal = $\text{Trend} + \text{Seasonal}$.
 2. Multiplicative Seasonal Variation.
Forecasting including trend and seasonal = $\text{Trend} \times \text{Seasonal}$.

Performance Check.



8. Which of the following is the BEST statement about the general principles of forecasting ?

- A. Forecasting are more accurate for individual items than for groups of items.
- B. Forecasting are more accurate for distant periods of time.
- C. Every forecast should include an estimate of error.
- D. Forecasts are usually accurate.

9. Why is important to track the forecast ?

- A. To compare the actual sales with the forecast.
- B. To improve our forecasting methods.
- C. To utilize actual sales data.
- D. To satisfy marketing's need to know.