



IIT ROORKEE



NPTEL ONLINE
CERTIFICATION COURSE

SUPPLY CHAIN ANALYTICS

Forecasting using multiple characteristics in Demand Data
and Inventory Management in Supply Chain

DR. RAJAT AGRAWAL

DEPARTMENT OF MANAGEMENT STUDIES

IIT ROORKEE



Ratio Seasonality Model

Date	Actual demand	Base	Seasonal Index	Forecast
Jan-16	19.36			
Feb-16	25.45			
Mar-16	19.73			
Apr-16	21.48			
May-16	20.77			
Jun-16	25.42			
Jul-16	23.79			
Aug-16	28.35			
Sep-16	26.8			
Oct-16	25.32			
Nov-16	25.22			
Dec-16	27.14	30		
Jan-17	32.52	31.0448		
Feb-17	31.33	30.9043		
Mar-17	25.32	30.9055		
Apr-17	27.53	30.9013		
May-17	26.38	30.8679		
Jun-17	23.72	30.0273		
Jul-17	29.14			

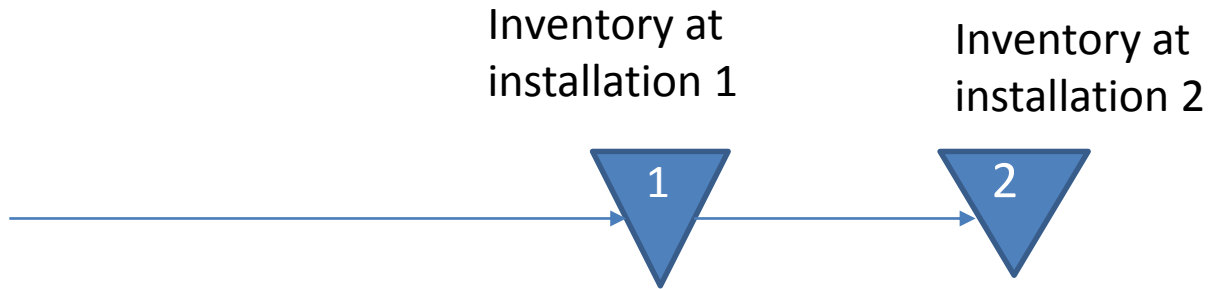


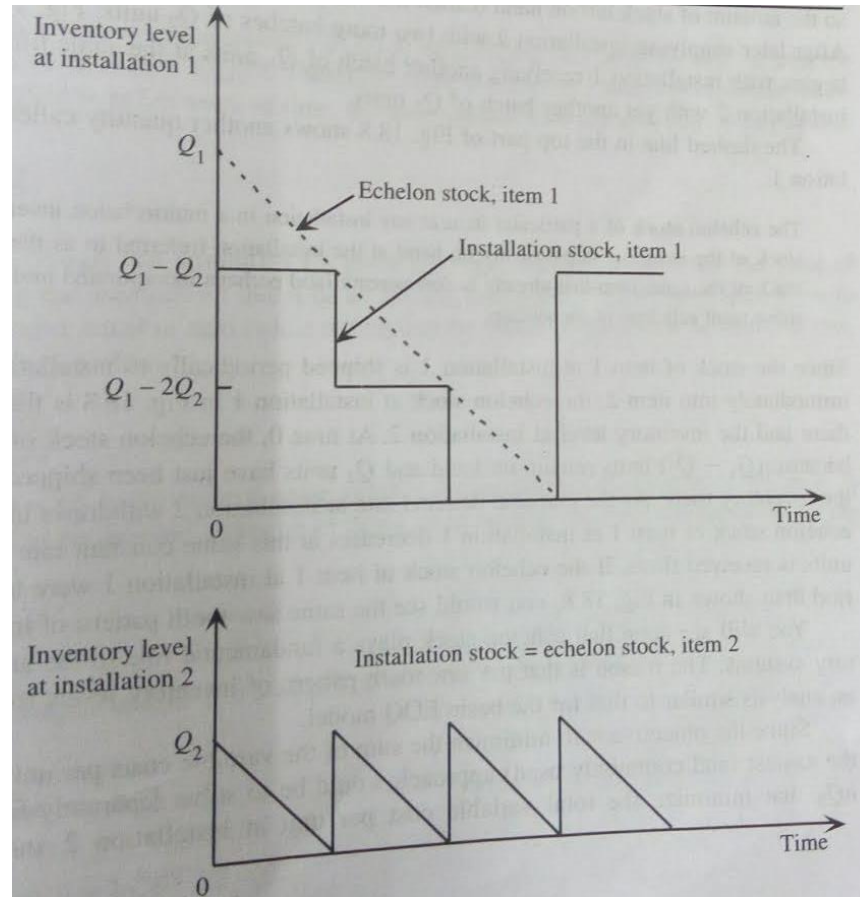
Additive Trend And Ratio Seasonality Model

- $\bar{S}_t = \alpha \left(\frac{D_t}{I_{t-L}} \right) + (1 - \alpha) (\bar{S}_{t-1} + T_{t-1})$
- $T_t = \beta (\bar{S}_t - \bar{S}_{t-1}) + (1 - \beta) T_{t-1}$
- $I_t = \gamma \left(\frac{D_t}{\bar{S}_t} \right) + (1 - \gamma) I_{t-L}$
- $F_{t,1} = (\bar{S}_t + \bar{T}_t) (I_{t-L+1})$



Inventory Management for two installations





THANK YOU

