

Airline Model

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The airline model is a special, but often used, case of multiplicative SARIMA model.

1. For a given seasonality length (s), the airline model is defined by four(4) parameters:

$(\mu), (\sigma), (\theta)$ and (Θ) . $[(1-L^s)(1-L)Y_t = \mu + (1-\theta L)(1-\Theta L^s)a_t]$ OR $[Z_t = (1-L^s)(1-L)Y_t = \mu + (1-\theta L)(1-\Theta L^s)a_t]$ OR $[Z_t = \mu - \theta a_{t-1} - \Theta a_{t-s} + a_t]$ Where:

- (s) is the length of seasonality.
- (μ) is the model mean
- (θ) is coefficient of first lagged innovation
- (Θ) is the coefficient of s -lagged innovation.
- (a_t) is the innovations time series.

Remarks

1. (Y_t) is not a stationary process, but the differenced time series (ΔY_t) is.
2. After we difference (Y_t) (i.e. (Z_t)), the airline model is simplified to a special MA(s) model
3. The airline model has 5 parameters: $(\mu, \sigma, s, \theta, \Theta)$

Requirements

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References

Hamilton, J .D.; [Time Series Analysis](#), Princeton University Press (1994), ISBN 0-691-04289-6

Tsay, Ruey S.; [Analysis of Financial Time Series](#) John Wiley & SONS. (2005), ISBN 0-471-690740

See Also

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