

Multivariate State Space Models

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$$y_t = \Theta \mu_t + \mu^* + n_t$$

$$\mu_t = \mu_{t-1} + w_t$$

- Matrix Θ is assumed as rectangular $n \times r$ with $r < n$
- The second equation updates an r -dimensional integrated process
- Some restrictions on μ^* and Θ are needed to identify the model
- $n-r$ cointegrating relationships are implied by this model
- The random walk process μ_t is viewed as the 'common trend' of the system
- They are equivalent to certain vector ARIMA models and merely use a different parameterization