ID5
MA Identification

5.6 MA PREDICTORS

Also the construction of predictors for MA processes requires the use of auxiliary high–order AR models to estimate the sequence of remote white noise $w(t)$. Assume that the observations $y(1), \ldots, y(t)$ are known; if we want to compute $y(t+1|t)$, the residuals of an auxiliary AR model give, at time t, the estimates of $w(n+1), \ldots, w(t)$. The optimal one–step–ahead MA predictor is

$$y(t+1|t) = \gamma_n w(t) + \ldots + \gamma_1 w(t-n+1) \qquad (5.6.1)$$

because its prediction error, $w(\cdot)$, has minimal variance and is white. Since the prediction error of the MA model is equal to the prediction error of the auxiliary AR model, it is also possible to use directly the AR predictor instead of the MA one.

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