

# ECON 3350/7350

## Univariate Time Series - II

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Tutorial 3

# Pure AR(p), MA(q) and ARMA(p,q)

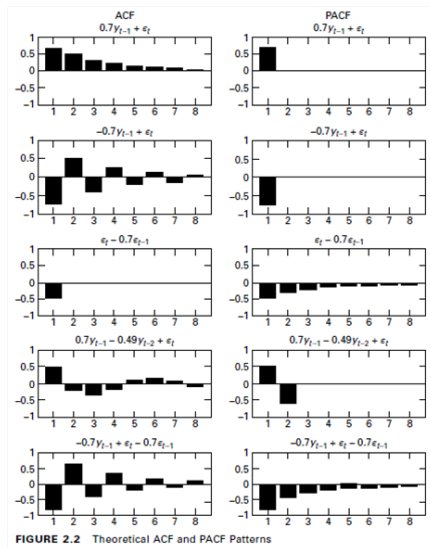


FIGURE 2.2 Theoretical ACF and PACF Patterns

# Strategy to Fitting $ARMA(p, q)$

## ① Identification

- ① Plot the data and decide an appropriate process to begin with (is there a trend?).
- ② Use the SACF and SPACF to suggest whether AR or MA terms are needed.

## ② Estimation and Diagnostics

- ① Estimate a model you think will be (more than) adequate.
- ② Look at the SACF and SPACF for the residuals to suggest whether more or fewer AR or MA terms are needed.
- ③ Repeat steps 3 and 4 to find the set of models that have no autocorrelation in the residuals.
- ④ Reduce this set by choosing models with “low” IC metrics (AIC, BIC).

## ③ Inference

- ① Compare results across this set of models; interpret accordingly.