

## SARIMA( $p, d, q$ ) $\times$ ( $P, D, Q$ ) $_S$ Notation

$$\phi(L)\Phi(L^S)(1-L)^d(1-L^S)^DY_t = \theta(L)\Theta(L^S)\varepsilon_t$$

### Regular (Non-Seasonal)

$p$	= AR order	(Number of AR lags)
$d$	= Differencing	(Regular differences)
$q$	= MA order	(Number of MA lags)

### Seasonal

$P$	= Seasonal AR	(SAR lags at $s, 2s, \dots$ )
$D$	= Seasonal Diff	$((1-L^S)^D)$
$Q$	= Seasonal MA	(SMA lags at $s, 2s, \dots$ )
$S$	= Period	(Seasonal period)

**Example: SARIMA(1, 1, 1)  $\times$  (0, 1, 1) $_{12}$**

Monthly data with: AR(1), MA(1), one regular diff,  
one seasonal diff at lag 12, seasonal MA(1)