$$s_t = \Phi_1(\theta)s_{t-1} + \Phi_\epsilon(\theta)\epsilon_t. \qquad (2.10)$$

$$y_t = \Psi_0(\theta) + \Psi_1(\theta)t + \Psi_2(\theta)s_t + u_t, \qquad (2.13)$$

Table 2.1: Conditional Distributions for Kalman Filter

	Distribution	Mean and Variance
$s_{t-1}\|(Y_{1:t-1},\theta)$	$N\left(\bar{s}_{t-1\|t-1}, P_{t-1\|t-1}\right)$	Given from Iteration $t-1$
$s_t\|(Y_{1:t-1},\theta)$	$N\left(\bar{s}_{t\|t-1}, P_{t\|t-1}\right)$	$\bar{s}_{t\|t-1} = \Phi_1\bar{s}_{t-1\|t-1}$
		$P_{t\|t-1} = \Phi_1 P_{t-1\|t-1}\Phi_1' + \Phi_\epsilon\Sigma_\epsilon\Phi_\epsilon'$
$y_t\|(Y_{1:t-1},\theta)$	$N\left(\bar{y}_{t\|t-1}, F_{t\|t-1}\right)$	$\bar{y}_{t\|t-1} = \Psi_0 + \Psi_1 t + \Psi_2\bar{s}_{t\|t-1}$
		$F_{t\|t-1} = \Psi_2 P_{t\|t-1}\Psi_2' + \Sigma_u$
$s_t\|(Y_{1:t},\theta)$	$N\left(\bar{s}_{t\|t}, P_{t\|t}\right)$	$\bar{s}_{t\|t} = \bar{s}_{t\|t-1} + P_{t\|t-1}\Psi_2' F_{t\|t-1}^{-1}(y_t - \bar{y}_{t\|t-1})$
		$P_{t\|t} = P_{t\|t-1} - P_{t\|t-1}\Psi_2' F_{t\|t-1}^{-1}\Psi_2 P_{t\|t-1}$