Monte Carlo Simulations (X)

$x_{t,i} = \theta_{11}x_{t-1,i} + \theta_{12}y_{t-1,i} + \mu_{x,i} + e_{1,i}$ $\qquad$ $y_{t,i} = \theta_{22}y_{t-1,i} + \theta_{21}x_{t-1,i} + \mu_{y,i} + e_{2,i}$