A

$$S(t+1) = \text{Bernoulli}\left(S(t), (1-b)^{\sum_{U} \text{Multinomial}(I(t),U)}\right)$$

$$E_0(t+1) = S(t) - S(t+1)$$

$$E_e(t+1) = E_{e-1}(t)$$

$$I_0(t+1) = E_{\sigma-1}(t)$$

$$I_i(t+1) = \text{Bernoulli}(I_{i-1}(t), 1-\rho_{\text{fail}}(i-1))$$

$$R(t+1) = R(t) + \left(\sum I_i(t) + E_{\sigma-1}(t) - \sum I_i(t+1)\right)$$

B

$$S'(t+1) = \text{Multinomial}(A_\xi(t+1), F) + \text{Multinomial}(S''(t), LF)$$

$$S''(t+1) = S'(t+1) - \text{Binomial}(\text{Multinomial}(S'(t+1), U), cI(t))$$

$$E'_0(t+1) = S'(t+1) - S''(t+1)$$

$$E'_e(t+1) = \text{Multinomial}(E'_{e-1}(t), LF)$$

$$I'(t+1) = \text{Multinomial}(I'(t) + E'_{\tau-1}(t), LF)$$