## Trying Same Rho

Sophie Wulfing

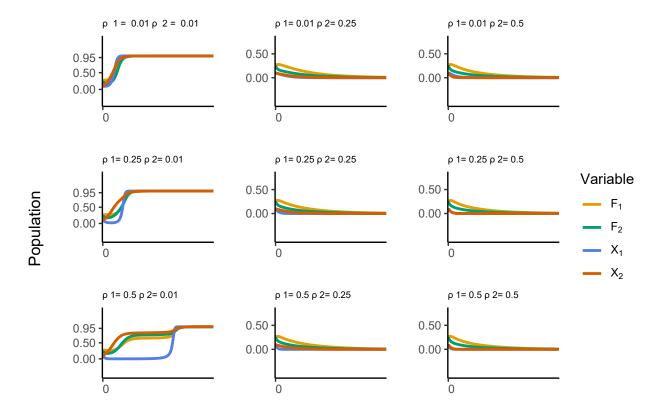
2024-06-26

$$\frac{dF_1}{dt} = r_1 F_1 (1 - F_1) - \frac{h_1 * F_1 (1 - X_1)}{F_1 + s_1} - m_2 F_1 + m_1 F_2 \tag{1}$$

$$\frac{dF_2}{dt} = r_2 F_2 (1 - F_2) - \frac{h_2 * F_2 (1 - X_2)}{F_2 + S_2} - m_1 F_2 + m_2 F_1 \tag{2}$$

$$\frac{dX_1}{dt} = k_1 X_1 (1 - X_1) \left[ \frac{1}{F_1 + c_1} - \omega_1 + d_1 (2X_1 - 1) + \rho_1 (2X_2 - 1) \right]$$
(3)

$$\frac{dX_2}{dt} = k_2 X_2 (1 - X_2) \left[ \frac{1}{F_2 + c_2} - \omega_2 + d_2 (2X_2 - 1) + \rho_2 (2X_1 - 1) \right]$$
(4)



Time (year) F= 0.25 X= 0.1

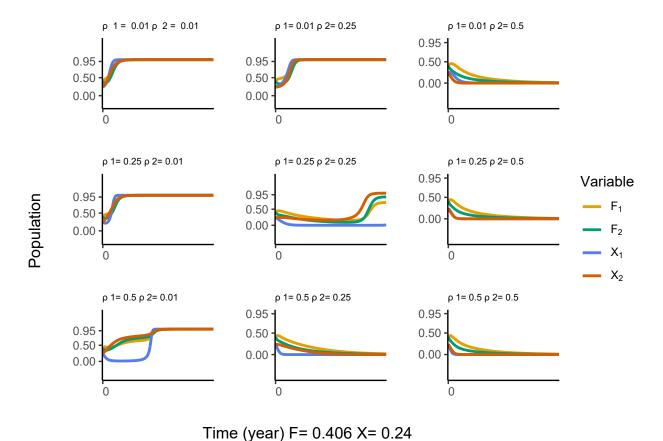
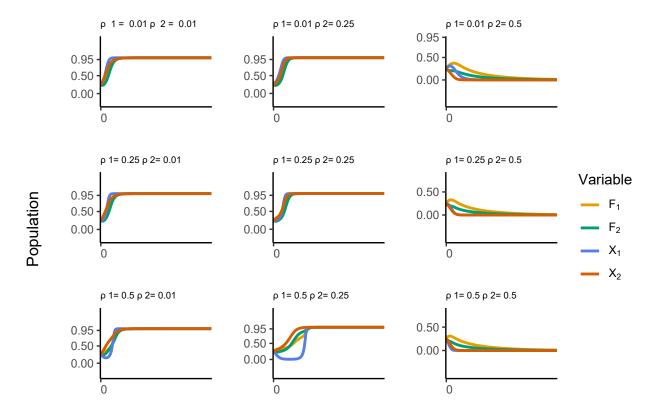
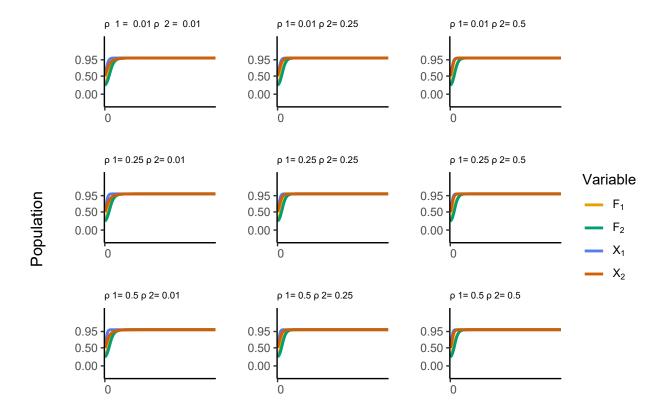


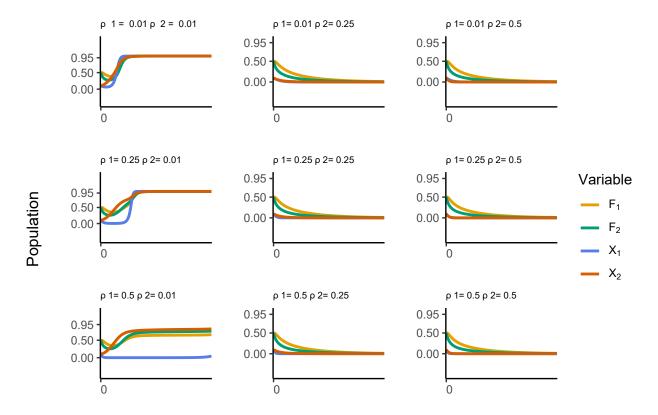
Figure 1: The difference in increasing outside social pressure on population 1 (the  $\rho_1$  parameter is increased down the columns of graphs) versus increasing social pressure from population 1 onto population 2 (the  $\rho_2$  parameter is increased across rows of graphs) which compares self-pressure to pressuring the other gropu.



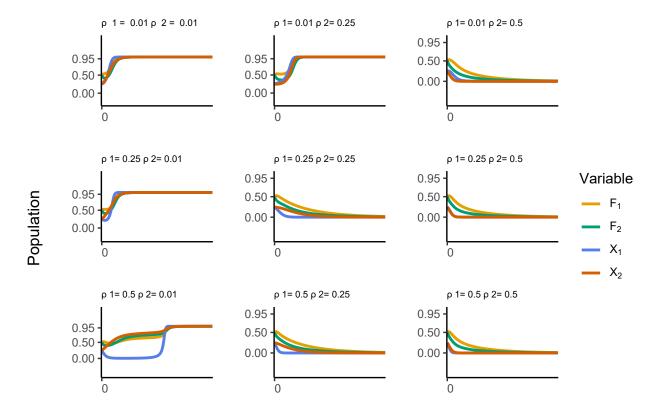
Time (year) F = 0.25 X = 0.25



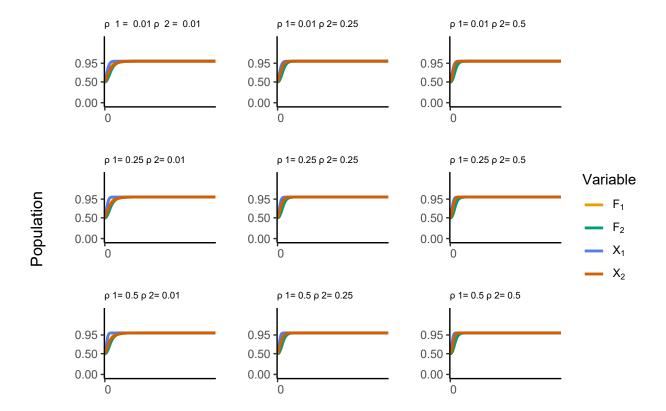
Time (year) F = 0.25 X = 0.5



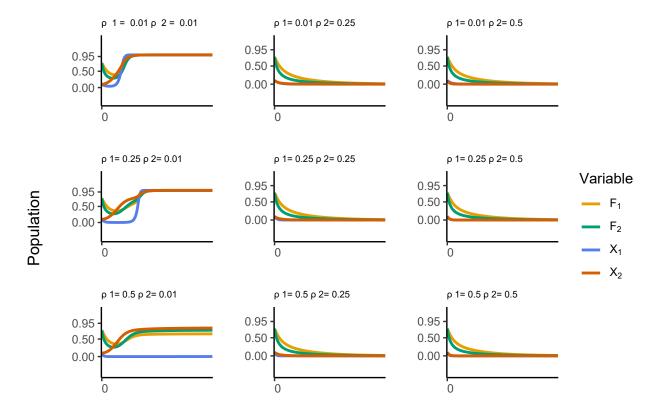
Time (year) F= 0.5 X= 0.1



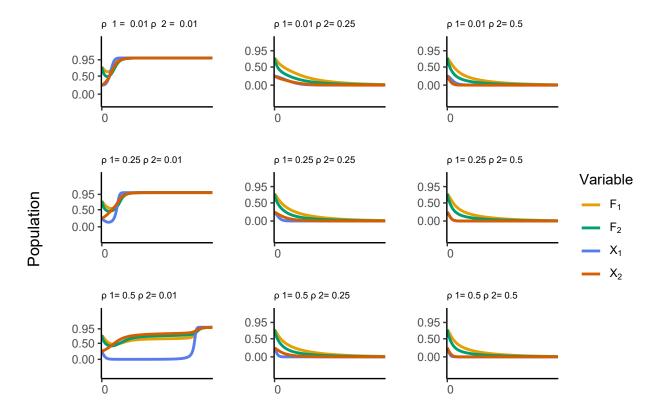
Time (year) F = 0.5 X = 0.25



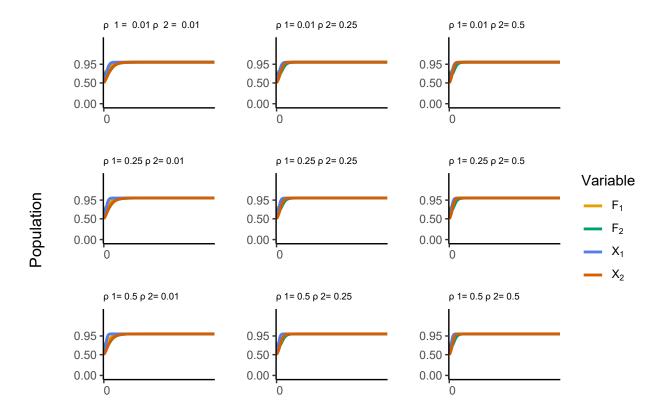
Time (year) F= 0.5 X= 0.5



Time (year) F= 0.75 X= 0.1



Time (year) F = 0.75 X = 0.25



Time (year) F= 0.75 X= 0.5