

8.2 Cournot Oligopoly with z Countries

$$X = \sum_{j=1}^z y_j = \sum_{i=1}^n x_i$$

$$P(y_j) = b(K - zy_j) + c$$

$$\max_{x_i} \pi = P(y_j)x_i - cx_i$$

$$\frac{d\pi}{dx_i} = P(y_j) + P'(y_j)x_i - c \stackrel{!}{=} 0$$

$$P(y_j) + P'(y_j)x_i = c$$

$$P(y_j) + P'(y_j)\frac{1}{n}X = c$$

$$b(K - zy_j) + c + \frac{1}{n}(-bz)X = c$$

$$b\left(K - X - \frac{z}{n}X\right) = 0$$

$$K = \left(1 + \frac{z}{n}\right)X$$

$$X = \frac{1}{\frac{z}{n} + 1}K$$