All functional relationships are assumed continuous. Notice that the foreign firm produces only for the home country's market.

Equations (2) and (2*) show first-order conditions for optimal output choice, where subscripts denote partial derivatives:

$$\pi_{x} = R_{x}(x, y) - C_{x}(x, v) = 0$$
(2)

$$\pi \star_{y} = (1 - t)R \star_{y}(x, y) - C \star_{y}(y, v \star) = 0$$
(2*)

Marginal production costs are considered positive and nondecreasing, as expressed below:

$$C_{\mathbf{x}} > 0; \ C_{\mathbf{x}\mathbf{x}} \ge 0 \tag{3}$$

$$C_{y}^{*} > 0; \ C_{yy}^{*} \ge 0$$
 (3*)

We assume that, for a given firm, an increase in rival output causes a decline in both total revenue and marginal revenue. The following inequalities express these restrictions:

$$R_{y} < 0 \tag{4}$$

$$\mathbf{R}^{\star}_{\mathbf{x}} < 0 \tag{4*}$$

$$\pi_{xy} = R_{xy} < 0 \tag{5}$$

 $\pi *_{yx} = (1 - t)R *_{yx} < 0 \tag{5*}$