$$E_I^* = \frac{G_2}{G_1+G_2} \cdot (-c_1 + (c_1 - a_1) \cdot (1 - \beta_1(\varepsilon_1^*)) + \frac{G_1}{G_1+G_2} \cdot (-c_2 + (c_2 - a_2) \cdot (1 - \beta_2(\varepsilon - \varepsilon_1^*)), \tag{3.35}$$

where

$$G_1 = (c_1 - a_1) \cdot (1 - \beta_1(\varepsilon_1^*))', \; G_2 = -(c_2 - a_2) \cdot (1 - \beta_2(\varepsilon - \varepsilon_1^*))', \tag{3.36}$$

and

$$E_S^* = -b_2 + (b_2 + d_2) \cdot \beta_2(\varepsilon - \varepsilon_1^*) \;\; (= -b_1 + (b_1 + d_1) \cdot \beta_1(\varepsilon_1^*)). \tag{3.37}$$

If $b_1 + d_2 < (b_1 + d_1) \cdot \beta_1(\varepsilon)$, (3.38)

then

$$\varepsilon_1^* = \varepsilon, \; q_1^* = 1, \;\; q_2^* = 0 \tag{3.39}$$

$$E_I^* = -q_1 \cdot (1 - \beta_1(\varepsilon)) - c_1 \cdot \beta_1(\varepsilon) \tag{3.40}$$

$$E_S^* = -b_1 \cdot (1 - \beta_1(\varepsilon)) + d_1 \cdot \beta_1(\varepsilon). \tag{3.41}$$

Proof

(i) With (3.27) and (3.29) equilibrium condition (3.6) is identically fulfilled, whereas (3.7) becomes

$$0 \geq q_1 \cdot (-b_1 + (b_1 + d_1) \cdot \beta_1(\varepsilon_1^*)) + q_2 \cdot (-b_2 + (b_2 + d_2) \cdot \beta_2(\varepsilon - \varepsilon_1^*))$$

for all q_1, q_2 such that $q_1 + q_2 \leq 1$. This inequality is always fulfilled if and only if

$$-b_1 + (b_1 + d_1) \cdot \beta_1(\varepsilon_1^*) \leq 0$$

$$-b_2 + (b_2 + d_2) \cdot \beta_2(\varepsilon - \varepsilon_1^*) \leq 0$$

which is equivalent to (3.29).

(ii) Using (3.27), (3.32) and (3.33), equilibrium conditions (3.6) and (3.7) reduce to

$$q_1^*(-c_1 + (c_1 - a_1)(1 - \beta_1(\varepsilon_1^*)) + q_2^*(-c_2 + (c_2 - a_2)(1 - \beta_2(\varepsilon - \varepsilon_1^*))$$

$$\geq \int_0^{\varepsilon} [q_1^*(-c_1 + (c_1 - a_1)(1 - \beta_1(\varepsilon_1)) + q_2^*(c_2 + (c_2 - a_2)(1 - \beta_2(\varepsilon - \varepsilon_1))] \, dF(\varepsilon_1) \tag{3.42}$$

for all distributions F on $[0, \varepsilon]$, and