

Table 1. Values of Parameters  $R_i, S_i, T_i$  and  $W_i$  for Nine Regions when  $\alpha \geq 0$  and  $\beta \geq 0$ .

Region $i$	$R_i$	$S_i$	$T_i$	$W_i$
1	1	$-2\alpha$	$2\beta$	$-2\alpha\beta$
2	0	0	$-4b$	$4b\alpha$
3	-1	$2\alpha$	$-2(\beta + 2b + 2b^*)$	$2\alpha(\beta + 2b + 2b^*)$
4	0	$4a$	0	$4a\beta$
5	0	0	0	$-8ab$
6	0	$-4a$	0	$-4a(\beta + 2b + 2b^*)$
7	-1	$2(\alpha + 2a + 2a^*)$	$-2\beta$	$2\beta(\alpha + 2a + 2a^*)$
8	0	0	$4b$	$-4b(\alpha + 2a + 2a^*)$
9	1	$-2(\alpha + 2a + 2a^*)$	$2(\beta + 2b + 2b^*)$	$-2(\alpha + 2a + 2a^*)(\beta + 2b + 2b^*)$

Table 2. Numerical Results of the Expected Distance  $E(z)$ , Estimated Distance and Simulation when  $\alpha \geq 0$  and  $\beta \geq 0$ .

$(a, b, a^*, b^*, \alpha, \beta)$	$E(z)$	Estimate	Simulation
(1, 1, 1, 1, 0, 0)	2.9471	2.8284	2.9360 (0.7916)
(1, 1, 1, 1, 1, 1)	4.3214	4.2426	4.3263 (0.8080)
(1, 1, 1, 1, 1, 2)	5.0668	5	5.0571 (0.8171)
(1, 1, 2, 2, 0, 0)	4.4393	4.2426	4.4435 (1.2581)
(1, 1, 2, 2, 1, 1)	5.8040	5.6569	5.8215 (1.2777)
(1, 1, 2, 2, 1, 2)	6.5332	6.4031	6.5286 (1.2871)
(1, 2, 3, 4, 1, 1)	8.8667	8.6023	8.8904 (2.3318)

Table 3. Values of  $R_i, S_i, T_i$  and  $W_i$  on Regions 1-12 for Case 1 when  $\alpha < 0$  and  $\beta \geq 0$ .

Region $i$	$R_i$	$S_i$	$T_i$	$W_i$
1	0	$-4\alpha$	0	$-4\alpha\beta$
2	0	0	0	$8b\alpha$
3	0	$4\alpha$	0	$4\alpha(\beta + 2b + 2b^*)$
4	1	$-2\alpha$	$2\beta$	$-2\alpha\beta$
5	0	0	$-4b$	$4b\alpha$
6	-1	$2\alpha$	$-2(\beta + 2b + 2b^*)$	$2\alpha(\beta + 2b + 2b^*)$
7	0	$4a$	0	$4a\beta$
8	0	0	0	$-8ab$
9	0	$-4a$	0	$-4a(\beta + 2b + 2b^*)$
10	-1	$2(\alpha + 2a + 2a^*)$	$-2\beta$	$2\beta(\alpha + 2a + 2a^*)$
11	0	0	$4b$	$-4b(\alpha + 2a + 2a^*)$
12	1	$-2(\alpha + 2a + 2a^*)$	$2(\beta + 2b + 2b^*)$	$-2(\alpha + 2a + 2a^*)(\beta + 2b + 2b^*)$

Table 4. Values of  $R_i, S_i, T_i$  and  $W_i$  on Regions 4-6 for Case 2A when  $\alpha < 0$  and  $\beta \geq 0$ .

Region $i$	$R_i$	$S_i$	$T_i$	$W_i$
4	-1	$2(2a - \alpha)$	$-2\beta$	$2\beta(2a - \alpha)$
5	0	0	$4b$	$-4b(2a - \alpha)$
6	1	$-2(2a - \alpha)$	$2(\beta + 2b + 2b^*)$	$-2(2a - \alpha)(\beta + 2b + 2b^*)$

Table 5. Values of  $R_i, S_i, T_i$  and  $W_i$  on Regions 1-3 for Case 2B when  $\alpha < 0$  and  $\beta \geq 0$ .

Region $i$	$R_i$	$S_i$	$T_i$	$W_i$
1	0	$8a$	0	$8a\beta$
2	0	0	0	$-16ab$
3	0	$-8a$	0	$-8a(\beta + 2b + 2b^*)$

Table 6. Values of  $R_i, S_i, T_i$  and  $W_i$  on Regions 7-9 for Case 3A when  $\alpha < 0$  and  $\beta \geq 0$ .

Region $i$	$R_i$	$S_i$	$T_i$	$W_i$
7	-2	$4(a + a^*)$	$-4\beta$	$4\beta(a + a^*)$
8	0	0	$8b$	$-8b(a + a^*)$
9	2	$-4(a + a^*)$	$4(\beta + 2b + 2b^*)$	$-4(a + a^*)(\beta + 2b + 2b^*)$

Table 7. Numerical Results of the Expected Distance  $E(z)$ , Estimated Distance and Simulation when  $\alpha < 0$  and  $\beta \geq 0$ .

$(a, b, a^*, b^*, \alpha, \beta)$	Case	$E(z)$	Estimate	Simulation
(2, 1, 2, 1, -0.5, 1)	1	4.7843	4.6098	4.7820 (1.2976)
(2, 1, 2, 2, -0.5, 1)	1	5.5270	5.3151	5.5504 (1.4267)
(2, 2, 2, 1, -0.5, 1)	1	5.5270	5.3151	5.5375 (1.4237)
(1, 1, 2, 1, -1.2, 1)	2A	3.6998	3.4986	3.7110 (0.9388)
(1, 1, 2, 2, -1.2, 1)	2A	4.5796	4.3863	4.5916 (1.2677)
(1, 2, 2, 1, -1.2, 3)	2A	6.3989	6.2642	6.4117 (1.2649)
(1, 1, 3, 2, -2.5, 0)	2B	3.8041	3.3541	3.8026 (1.3307)
(1, 1, 3, 3, -2.5, 1)	2B	5.5517	5.2202	5.5561 (1.7710)
(1, 2, 3, 3, -2.5, 2)	2B	7.4054	7.1589	7.4050 (2.0112)
(1, 1, 1, 1, -1.5, 1)	3A	3.1537	3.0414	3.1512 (0.7949)
(2, 2, 3, 3, -3, 0)	3A	5.8037	5.3852	5.7986 (1.9991)
(1, 1, 1, 1, -2, 0)	3A	2.1763	2	2.1726 (0.7741)
(1, 1, 2, 2, -2.5, 1)	3B	4.2462	4.0311	4.2537 (1.2480)
(1, 1, 2, 2, -3, 1)	3B	4.2173	4	4.2095 (1.2321)
(2, 1, 4, 3, -5, 1)	3B	5.7278	5.0990	5.7065 (1.7953)
(1, 4, 2, 3, -1, 1)	1, 2A	8.3883	8.2462	8.4040 (2.7458)
(1, 4, 2, 3, -2, 1)	2A, 3A	8.1887	8.0623	8.1466 (2.8244)
(1, 1, 1, 1, -1, 0)	1, 2A, 3A	2.3899	2.2361	2.3787 (0.7929)
(1, 1, 1, 1, -1, 1)	1, 2A, 3A	3.2696	3.1623	3.2617 (0.7983)