

Table 1 MAUBs h_2 for various h_1 and τ with $h_{2d} = 0.5, h_{1d} = -0.5$ (Example 1).

τ	h_1							
	0.1	0.3	0.5	0.7	0.9	1.0	2.0	3.0
0.1506	0.4279	0.4951	0.7022	0.9046	1.1027	1.2091	2.1946	3.213
0.1507	0.4006	0.4852	0.6904	0.8912	1.0879	1.1936	2.1946	3.1879
0.151	0.3404	0.4657	0.6671	0.8647	1.0586	1.1629	2.1737	3.1627
0.152	0.2557	0.4096	0.6106	0.8129	1.0154	1.1176	2.1116	3.1126
0.153	0.2279	0.3829	0.5887	0.7876	0.9871	1.0879	2.0911	3.0877
0.154	0.2017	0.3571	0.5566	0.7627	0.9592	1.0586	2.0707	3.0629
0.155	0.1771	0.3322	0.5357	0.7382	0.9317	1.0297	2.0302	3.0382
0.156	0.1486	0.3004	0.5051	0.7022	0.9046	1.0012	2.0101	3.0136
0.157	0.1226	0.3004	0.5051	0.7022	0.9046	1.0012	2.0101	3.0136
0.158	0.1036	0.3004	0.5051	0.7022	0.9046	1.0012	2.0101	3.0136
0.159	0.1036	0.3004	0.5051	0.7022	0.9046	1.0012	2.0101	3.0136
0.160	0.1036	0.3004	0.5051	0.7022	0.9046	1.0012	2.0101	3.0136
0.2	0.1036	0.3004	0.5051	0.7022	0.9046	1.0012	2.0101	3.0136

Table 2 MAUBs h_2 for various h_1 and τ with $h_{2d}=1.5, h_{1d}=-1.5$ (Example 1).

τ	h_1							
	0.1	0.3	0.5	0.7	0.9	1.0	2.0	3.0
0	131.6254	131.7877	131.9501	132.2752	132.4379	132.6007	133.5796	134.5621
0.1	15.7081	15.9331	16.1029	16.3307	16.5026	16.6177	17.6122	18.6356
0.11	7.0877	7.3154	7.5079	7.7029	7.9004	8.0201	9.0101	10.0129
0.12	2.1946	2.3654	2.5652	2.7731	2.9647	3.0629	4.0756	5.0722
0.13	0.9592	1.1326	1.3367	1.5401	1.7392	1.8337	2.8442	3.8504
0.14	0.5887	0.7627	0.9592	1.1629	1.3696	1.4536	2.4754	3.4717
0.145	0.4466	0.6106	0.8129	1.0154	1.2091	1.3204	2.3221	3.3154
0.146	0.4187	0.5779	0.7876	0.9871	1.1782	1.2881	2.2792	3.2897
0.147	0.3917	0.5566	0.7504	0.9592	1.1629	1.2562	2.2579	3.2641
0.148	0.3571	0.5254	0.7261	0.9317	1.1326	1.2247	2.2367	3.2386
0.149	0.3322	0.4951	0.7022	0.9046	1.1027	1.1936	2.1946	3.2132
0.150	0.3082	0.4657	0.6671	0.8647	1.0732	1.1782	2.1737	3.1879
0.151	0.2776	0.4372	0.6442	0.8386	1.0441	1.1477	2.1529	3.1376
0.152	0.2557	0.4096	0.6106	0.8129	1.0154	1.1176	2.1116	3.1126
0.153	0.2279	0.3829	0.5887	0.7876	0.9871	1.0879	2.0911	3.0877
0.154	0.2017	0.3571	0.5566	0.7627	0.9592	1.0586	2.0707	3.0629
0.155	0.1771	0.3322	0.5357	0.7382	0.9317	1.0297	2.0302	3.0382
0.156	0.1486	0.3004	0.5051	0.7022	0.9046	1.0012	2.0101	3.0136
0.157	0.1226	0.3004	0.5051	0.7022	0.9046	1.0012	2.0101	3.0136
0.5	0.1036	0.3004	0.5051	0.7022	0.9046	1.0012	2.0101	3.0136
1.0	0.1036	0.3004	0.5051	0.7022	0.9046	1.0012	2.0101	3.0136
3.0	0.1036	0.3004	0.5051	0.7022	0.9046	1.0012	2.0101	3.0136

Table 3 Maximum allowable τ for various h (Example 1).

h	0.1	0.2	0.3	0.4	0.5	0.6
Zeng et al. [45]	0.123	0.120	0.115	0.104	0.080	infeasible
Chen et al. [8]	0.172	0.171	0.166	0.158	0.152	0.146
Corollary 3	0.1771	0.1712	0.1684	0.1665	0.1647	0.1611

Table 4 MAUBs h_2 for different h_{2d} ($\tau = 0.156$) (Example 1).

h_{2d}	0.1	0.3	0.5	0.7	0.9	1.0
Corollary 1	1.5301	1.0501	0.9046	0.8386	0.8257	0.8129

Table 5 MAUBs h_2 for different h_{2d} ($h_{1d} = 0, h_1 = 0, \tau = 0.17$) (Example 1).

h_{2d}	0.1	0.3	0.5	0.7	0.9	1.0
Chen et al. [8] Corollary 1	0.412	0.348	0.291	0.266	0.260	0.258
Chen et al. [8] Corollary 1'	0.373	0.296	0.240	0.222	0.214	0.211
Corollary1	0.4754	0.4006	0.3829	0.3742	0.3004	0.2279

Table 6 Maximum allowable τ for different h (Example 2)

h	0.1	0.2	0.3	0.4	0.5	0.6
Chen et al. [8] Lemma 3	0.485	0.421	0.344	0.249	0.121	infeasible
Chen et al.[8] Theorem 2	0.673	0.669	0.666	0.6664	0.663	0.662
Corollary 3	0.7239	0.7088	0.6901	0.6716	0.6534	0.6390

Table 7 Maximum allowable τ_2 for different τ_{2d} and h_{2d} ($h=0.5$) (Example 2)

h_{2d}	τ_{2d}					
	0.1	0.3	0.5	0.7	0.9	1.5
0.1	0.7420	0.7040	0.7040	0.6670	0.6670	0.6310
0.5	0.6670	0.6670	0.6670	0.6310	0.6310	0.6310
0.9	0.6310	0.5960	0.5960	0.5960	0.5620	0.5620
1.5	0.6310	0.5960	0.5960	0.5620	0.5620	0.5620

Table 8 Maximum allowable h for different τ (Example 2)

τ	0.1	0.2	0.3	0.4	0.5	0.6
Corollary 3	2.1460	1.7120	1.3270	0.9470	0.5620	0.1720

Table 9 MAUBs h_2 for different h_1 and k_1 with $h_{1d} = -1.5, h_{2d} = 1.5, \tau = 0.1, \rho = 0.5$

h_1	k_1				
	0.1	0.3	0.5	0.7	0.9
0.5	0.5051	0.5051	3.8782	8.8832	16.7911
1.0	1.0012	1.0012	3.5512	9.0526	17.1406
1.5	1.5052	1.5052	3.4192	9.3529	17.4937
2.0	2.0101	2.0101	3.4717	9.7904	17.8504
2.5	2.5201	2.5201	3.8227	10.2832	18.3316
3.0	3.0136	3.0136	4.3072	10.7417	18.8192
3.5	3.5246	3.5246	4.7896	11.2576	19.3132

Table 10 Maximum allowable τ for different h_1 and k_1 with $h_{1d} = -0.5, h_{2d} = 0.5, h_2 = 5, \rho = 0.5$

h_1	k_1						
	0.45	0.5	0.6	0.7	0.8	0.9	0.95
0.1	0.1486	0.3571	0.5254	0.6106	0.6671	0.7261	0.7627
0.2	0.1327	0.3322	0.5152	0.5887	0.6442	0.6904	0.7261
0.3	0.1226	0.3161	0.4951	0.5779	0.6329	0.6787	0.7141
0.4	0.1129	0.3082	0.4852	0.5672	0.6217	0.6787	0.7141
0.5	0.1036	0.2927	0.4754	0.5672	0.6106	0.6671	0.7022
0.6	0.0947	0.2776	0.4657	0.5566	0.6106	0.6556	0.6904
0.7	0.0821	0.2702	0.4561	0.5461	0.5996	0.6556	0.6787
0.8	0.0704	0.2557	0.4561	0.5461	0.5996	0.6442	0.6787
0.9	0.0562	0.2416	0.4466	0.5357	0.5887	0.6442	0.6671
1.0	0.0407	0.2347	0.4466	0.5357	0.5887	0.6442	0.6671
1.1	0.0254	0.2279	0.4372	0.5254	0.5887	0.6556	0.6787
1.2	0.0172	0.2146	0.4372	0.5254	0.5996	0.6556	0.6787
1.3	0.0137	0.2146	0.4279	0.5254	0.5996	0.6556	0.6787
1.4	0.0106	0.2081	0.4279	0.5357	0.5996	0.6556	0.6904

Table 11 MAUBs h_2 for different τ with $h_1 = 0.1, K_2 = \text{diag}\{1, 1\}, K_1 = \text{diag}\{0.5, 0.5\}, \rho = 0.5$

τ	0	0.2	0.4	0.5	0.6	0.8	1	5
h_2	4.8829	3.0382	1.3042	1.0732	0.8647	0.4466	0.1486	0.1036

Table 12 MAUBs h_2 for different k_1 with $h_1 = 0.1, h_{1d} = -1.5, h_{2d} = 1.5, \tau = 0.1, \rho = 0.1$

k_1	0.42	0.43	0.44	0.45	0.5	0.6	0.7	0.8	0.9
h_2	3.3154	4.4851	6.4621	9.6581	19.7507	31.7207	43.0129	58.1582	84.5651

Table 13 MAUBs h_2 for different k_1 with $h_1 = 1, h_{1d} = -1.5, h_{2d} = 1.5, \tau = 0.1, \rho = 0.1$

k_1	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
h_2	1.0012	1.0012	1.0012	1.0012	13.7551	28.2377	41.1779	57.7276	83.9161

Table 14 Comparisons of the MAUBs h_2 for different h_{2d} ($\tau = 0, h_1 = 0, h_{1d} = 0$)

Method	$h_{2d} = 0.1$	$h_{2d} = 0.5$	$h_{2d} = 0.9$	$h_{2d} \geq 1$	N_v
He <i>et al.</i> [15]	3.2793	2.2245	1.5847	1.5444	$12.5n^2 + 5.5n$
He <i>et al.</i> [16]	3.3039	2.5376	2.0853	2.0389	$13.5n^2 + 4.5n$
Li and Ye [22]	3.2819	2.2261	1.6035	-	$12.5n^2 + 3.5n$
Zhang <i>et al.</i> [45]	3.3574	2.5915	2.1306	-	$6.5n^2 + 12.5n$
Wang <i>et al.</i> [43]	3.4886	2.6056	2.2522	-	$7.5n^2 + 5.5n$
Zhang and Han [48]	3.5423	2.4530	1.8593	-	$8.5n^2 + 4.5n$
Xiao and Zhang [44]	3.5546	2.6438	2.1349	-	$112.5n^2 + 1.5n$
Kwon and Park [18]	3.7525	2.7353	2.2760	2.1326	$19.5n^2 + 2.5n$
Kwon <i>et al.</i> [20]	3.7857	3.0546	2.6703	2.6575	$30.5n^2 + 15.5n$
Ge <i>et al.</i> [11]	3.8428	2.7081	2.5583	2.1212	$10n^2 + 3n$
Tian and Xie [41]	3.91	2.79	2.33	2.2047	$36.5n^2 + 2.5n$
Tian <i>et al.</i> [42]	3.9151	2.8049	2.5583	-	$16n^2 + 4n$
Muralisankar and Gopalakrishnan [37]	4.0930	3.3912	2.8335	-	$14n^2 + 8n$
Zhou <i>et al.</i> [51]	4.1840	2.8387	2.3423	-	$20n^2 + 11n$
Qiu <i>et al.</i> [38]	4.1894	3.1912	2.8921	-	$26.5n^2 + 16.5n$
Zeng <i>et al.</i> [47]	4.1903	3.0779	2.8268	-	$66.5n^2 + 18.5n$
Kwon <i>et al.</i> [19]	4.1967	3.6246	3.5961	3.5952	$64.5n^2 + 16n$
Zheng <i>et al.</i> [50]	4.4288	4.0089	3.2900		$11.5n^2 + 6.5n$
Kwon <i>et al.</i> [21]	4.3361	3.7723	3.7329	3.7212	$327.5n^2 + 26.5n$
Hua <i>et al.</i> [17]	5.7803	4.6964	3.6639	-	$23n^2 + 44n$
Liu [27]	7.6569	6.5690	4.0366	3.1626	$14.5n^2 + 5.5n$
Liu [28]	12.765	9.8945	6.4269	-	$15n^2 + 6n$
Corollary 1	27.2611	12.7201	6.7861	5.5651	$24.5n^2 + 9.5n$

N_v : Number of decision variables

Table 15 MAUBs h_2 for different h_{2d} ($\tau = 0.8, h_1 = 0, h_{1d} = 0$)

Method	$h_{2d} = 0.1$	$h_{2d} = 0.3$	$h_{2d} = 0.5$	$h_{2d} = 0.7$	$h_{2d} = 0.9$	$h_{2d} \geq 1$
Corollary1	3.0382	2.2156	1.5932	1.2404	1.2404	1.2404

Table 16 Comparisons of the MAUBs h_2 for different h_{2d} with $\rho = 0.5, h_1 = 3$, and $h_{1d} = \tau = 0$ (Example 4).

Method	$h_{2d} = 0.1$	$h_{2d} = 0.5$	$h_{2d} = 0.9$	$h_{2d} \geq 1$	N_v
Zhao <i>et al.</i> [48]	3.65	3.32	3.26	3.24	$14n^2 + 12n$
Li <i>et al.</i> [23]	3.78	3.45	3.39	3.38	$20n^2 + n$
Kwon <i>et al.</i> [18]	4.1967	3.6246	3.5961	3.5952	$64.5n^2 + 16n$
Cai <i>et al.</i> [4]	4.4980	4.0587	3.9526	-	$65n^2 + 10n$
Manivannan [34]	5.4735	4.5487	4.4882	4.4532	$35n^2 + 10n$
Corollary 1	9.0451	4.9501	4.6561	4.5601	$24.5n^2 + 9.5n$

N_v : Number of decision variables