

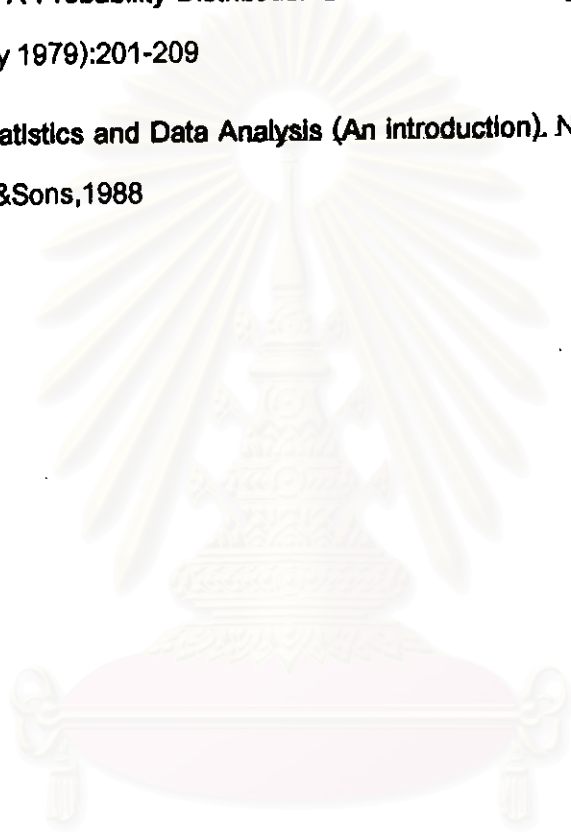
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สถาบันวิทยบริการ  
จุฬาลงกรณ์มหาวิทยาลัย



**ภาคผนวก**

สถาบันวิทยบริการ  
จุฬาลงกรณ์มหาวิทยาลัย

**ตารางที่ 1** Lambda Parameters for Given Values of Skewness ( $\alpha_3$ ) and Kurtosis ( $\alpha_4$ ) when  $\mu = 0$  and  $\sigma^2 = 1$

$\alpha_3 = 0.0$					$\alpha_3 = 0.05$					$\alpha_3 = 0.10$				
$\alpha_4$	LAM 1	LAM 2	LAM 3	LAM 4	$\alpha_4$	LAM 1	LAM 2	LAM 3	LAM 4	$\alpha_4$	LAM 1	LAM 2	LAM 3	LAM 4
1.0	.0	.5774	1.0000	1.0000	1.0	-1.703	.2041	.0000	.9502*	1.0	-1.678	.2835	.0000*	.9071*
2.0	.0	.4952	.5843	.5843	2.0	-1.229	.3122	.0505	.7463	2.0	-1.271	.3028	.0412	.7372
3.0	.0	.4197	.4092	.4092	3.0	-.802	.3314	.1120	.5002	3.0	-.872	.3177	.0941	.5780
4.0	.0	.3533	.3032	.3032	4.0	-.375	.3328	.1874	.3941	4.0	-.515	.3164	.1477	.4816
5.0	.0	.2949	.2303	.2303	5.0	-.143	.2924	.1973	.2605	5.0	-.269	.2863	.1678	.3831
6.0	.0	.2433	.1745	.1745	6.0	-.083	.2429	.1625	.1903	6.0	-.164	.2417	.1464	.3033
7.0	.0	.1974	.1349	.1349	7.0	-.059	.1975	.1274	.1425	7.0	-.117	.1977	.1205	.2503
8.0	.0	.1543	.1014	.1014	8.0	-.044	.1545	.0774	.1041	8.0	-.092	.1372	.0936	.2111
9.0	.0	.1191	.0742	.0742	9.0	-.039	.1194	.0714	.0770	9.0	-.074	.1203	.0690	.1803
10.0	.0	.0852	.0512	.0512	10.0	-.033	.0856	.0699	.0530	10.0	-.065	.0846	.0690	.1552
11.0	.0	.0545	.0317	.0317	11.0	-.027	.0548	.0311	.0327	11.0	-.057	.0558	.0308	.1342
12.0	.0	.0262	.0148	.0148	12.0	-.026	.0264	.0146	.0153	12.0	-.049	.0276	.0149	.1163
13.0	.0	.0128	.0074	.0074	13.0	-.024	.0132	.0074	.0074	13.0	-.048	.0142	.0142	.1004
14.0	.0	.0065	.0043	.0043	14.0	-.024	.0064	.0043	.0043	14.0	-.044	.0140	.0140	.0862
15.0	.0	.0033	.0024	.0024	15.0	-.022	.0033	.0024	.0024	15.0	-.044	.0103	.0103	.0736
16.0	.0	.0021	.0013	.0013	16.0	-.022	.0021	.0013	.0013	16.0	-.041	.0022	.0022	.0617
17.0	.0	.0016	.0010	.0010	17.0	-.018	.0016	.0010	.0010	17.0	-.037	.0016	.0016	.0507
18.0	.0	.0012	.0008	.0008	18.0	-.019	.0012	.0008	.0008	18.0	-.034	.0016	.0016	.0404
19.0	.0	.0009	.0006	.0006	19.0	-.016	.0009	.0006	.0006	19.0	-.033	.0009	.0009	.0307
20.0	.0	.0007	.0005	.0005	20.0	-.016	.0007	.0005	.0005	20.0	-.032	.0007	.0007	.0217
21.0	.0	.0005	.0004	.0004	21.0	-.015	.0005	.0004	.0004	21.0	-.030	.0005	.0005	.0134
22.0	.0	.0004	.0003	.0003	22.0	-.014	.0004	.0003	.0003	22.0	-.028	.0004	.0004	.0050
23.0	.0	.0003	.0002	.0002	23.0	-.014	.0003	.0002	.0002	23.0	-.027	.0003	.0003	.0019
24.0	.0	.0002	.0002	.0002	24.0	-.013	.0002	.0002	.0002	24.0	-.027	.0002	.0002	.0008
25.0	.0	.0002	.0001	.0001	25.0	-.012	.0002	.0001	.0001	25.0	-.025	.0002	.0002	.0004
26.0	.0	.0001	.0001	.0001	26.0	-.012	.0001	.0001	.0001	26.0	-.024	.0001	.0001	.0002
27.0	.0	.0001	.0001	.0001	27.0	-.011	.0001	.0001	.0001	27.0	-.023	.0001	.0001	.0001
28.0	.0	.0001	.0001	.0001	28.0	-.011	.0001	.0001	.0001	28.0	-.022	.0001	.0001	.0001
29.0	.0	.0001	.0001	.0001	29.0	-.011	.0001	.0001	.0001	29.0	-.022	.0001	.0001	.0001
30.0	.0	.0001	.0001	.0001	30.0	-.010	.0001	.0001	.0001	30.0	-.021	.0001	.0001	.0001
31.0	.0	.0001	.0001	.0001	31.0	-.010	.0001	.0001	.0001	31.0	-.020	.0001	.0001	.0001
32.0	.0	.0001	.0001	.0001	32.0	-.009	.0001	.0001	.0001	32.0	-.020	.0001	.0001	.0001
33.0	.0	.0001	.0001	.0001	33.0	-.009	.0001	.0001	.0001	33.0	-.020	.0001	.0001	.0001
34.0	.0	.0001	.0001	.0001	34.0	-.009	.0001	.0001	.0001	34.0	-.019	.0001	.0001	.0001
35.0	.0	.0001	.0001	.0001	35.0	-.009	.0001	.0001	.0001	35.0	-.019	.0001	.0001	.0001
36.0	.0	.0001	.0001	.0001	36.0	-.009	.0001	.0001	.0001	36.0	-.018	.0001	.0001	.0001
37.0	.0	.0001	.0001	.0001	37.0	-.009	.0001	.0001	.0001	37.0	-.017	.0001	.0001	.0001
38.0	.0	.0001	.0001	.0001	38.0	-.009	.0001	.0001	.0001	38.0	-.017	.0001	.0001	.0001
39.0	.0	.0001	.0001	.0001	39.0	-.009	.0001	.0001	.0001	39.0	-.017	.0001	.0001	.0001
40.0	.0	.0001	.0001	.0001	40.0	-.009	.0001	.0001	.0001	40.0	-.017	.0001	.0001	.0001
41.0	.0	.0001	.0001	.0001	41.0	-.009	.0001	.0001	.0001	41.0	-.017	.0001	.0001	.0001
42.0	.0	.0001	.0001	.0001	42.0	-.009	.0001	.0001	.0001	42.0	-.017	.0001	.0001	.0001
43.0	.0	.0001	.0001	.0001	43.0	-.009	.0001	.0001	.0001	43.0	-.017	.0001	.0001	.0001
44.0	.0	.0001	.0001	.0001	44.0	-.009	.0001	.0001	.0001	44.0	-.017	.0001	.0001	.0001
45.0	.0	.0001	.0001	.0001	45.0	-.009	.0001	.0001	.0001	45.0	-.017	.0001	.0001	.0001
46.0	.0	.0001	.0001	.0001	46.0	-.009	.0001	.0001	.0001	46.0	-.017	.0001	.0001	.0001
47.0	.0	.0001	.0001	.0001	47.0	-.009	.0001	.0001	.0001	47.0	-.017	.0001	.0001	.0001
48.0	.0	.0001	.0001	.0001	48.0	-.009	.0001	.0001	.0001	48.0	-.017	.0001	.0001	.0001
49.0	.0	.0001	.0001	.0001	49.0	-.009	.0001	.0001	.0001	49.0	-.017	.0001	.0001	.0001
50.0	.0	.0001	.0001	.0001	50.0	-.009	.0001	.0001	.0001	50.0	-.017	.0001	.0001	.0001

The parameter values given in this table are for a variate with zero mean and unit variance. The procedure for adjusting the parameters to reflect a different mean or variance is given in Section 3. A plus sign (+) next to a tabled value indicates that the value has two leading zeroes and should be multiplied by  $10^{-2}$ . Similarly, a dollar sign (\$) next to a tabled value indicates that the value should be multiplied by  $10^{-4}$ . An asterisk (\*) next to a tabled value of  $\lambda_j$  indicates that the difference between the calculated and specified values of  $\alpha_j$ , i.e.  $|\alpha_j(\lambda_1, \lambda_2) - \alpha_j|$ , is somewhat greater than 0.01. See Section 4 for a discussion of the construction and accuracy of this table.

ตารางที่ 1 (ต่อ)

α <sub>j</sub> = 0.30					α <sub>j</sub> = 0.35					α <sub>j</sub> = 0.40				
α <sub>i</sub>	LAR 1	LAR 2	LAR 3	LAR 4	α <sub>i</sub>	LAR 1	LAR 2	LAR 3	LAR 4	α <sub>i</sub>	LAR 1	LAR 2	LAR 3	LAR 4
1.1	-1.530	.2460	.0000	.7020	2.0	-1.539	.2439	.0000	.6836	2.2	-1.398	.2302	.0119	.5681
1.2	-1.164	.2755	.0360	.5354	2.2	-1.252	.2460	.0254	.5589	2.4	-1.093	.2500	.0410	.4500
1.4	-.071	.2793	.0695	.4340	2.4	-.935	.2453	.0559	.4615	2.6	-.802	.2473	.0648	.3527
1.6	-.642	.2586	.0911	.3324	2.6	-.724	.2328	.0775	.3423	2.8	-.637	.2273	.0747	.2720
1.8	-.474	.2323	.0983	.2495	2.8	-.550	.2290	.0873	.2604	3.0	-.504	.2000	.0762	.2049
2.0	-.362	.1991	.0925	.1859	3.0	-.427	.1996	.0854	.1961	3.2	-.400	.1698	.0718	.1555
2.2	-.288	.1641	.0784	.1377	3.2	-.303	.1645	.0758	.1462	3.4	-.337	.1371	.0609	.1149
2.4	-.239	.1298	.0640	.1003	3.4	-.242	.1331	.0625	.1072	3.6	-.280	.1040	.0482	.0824
2.6	-.204	.0973	.0481	.0704	3.6	-.183	.1014	.0482	.0760	3.8	-.240	.0764	.0351	.0550
2.8	-.179	.0671	.0330	.0460	3.8	-.123	.0714	.0340	.0503	4.0	-.222	.0483	.0223	.0337
3.0	-.160	.0389	.0190	.0255	4.0	-.111	.0434	.0206	.0293	4.2	-.200	.0224	.0103	.0199
3.2	-.144	.0127	.0075	.0035	4.2	-.172	.0173	.0150	.0112	4.3	-.198	.0100	.0057	.0120
3.3	-.138	.0780	.0300	.0889	4.3	-.163	.0710	.0293	.0390	4.4	-.192	.0097	.0062	.0125
3.4	-.131	.0114	.0030	.0017	4.4	-.156	.0105	.0032	.0021	4.5	-.174	.0034	.0004	.0013
3.5	-.129	.0231	.0110	.0139	4.5	-.151	.0167	.0073	.0045	4.6	-.166	.0020	.0011	.0013
3.6	-.121	.0343	.0163	.0203	4.6	-.142	.0230	.0139	.0100	4.8	-.151	.0042	.0020	.0027
3.8	-.112	.0454	.0216	.0267	4.8	-.134	.0311	.0236	.0160	5.0	-.144	.0062	.0027	.0037
4.0	-.102	.0565	.0269	.0321	5.0	-.124	.0410	.0335	.0240	5.2	-.134	.0080	.0037	.0045
4.2	-.100	.0673	.0322	.0375	5.2	-.117	.0509	.0407	.0303	5.4	-.129	.0097	.0045	.0054
4.4	-.094	.0774	.0375	.0420	5.4	-.110	.0608	.0483	.0360	5.6	-.122	.0114	.0053	.0064
4.6	-.088	.0870	.0428	.0460	5.6	-.103	.0700	.0553	.0440	5.8	-.115	.0132	.0061	.0072
4.8	-.083	.0955	.0481	.0490	5.8	-.100	.0780	.0610	.0490	6.0	-.111	.0150	.0068	.0079
5.0	-.081	.1020	.0534	.0510	6.0	-.094	.0850	.0670	.0540	6.2	-.104	.0168	.0076	.0084
5.2	-.079	.1072	.0587	.0550	6.2	-.089	.0910	.0730	.0600	6.4	-.102	.0186	.0083	.0091
5.4	-.075	.1119	.0640	.0590	6.4	-.085	.0960	.0790	.0660	6.6	-.100	.0204	.0089	.0096
5.6	-.069	.1160	.0693	.0640	6.6	-.082	.1000	.0840	.0720	6.8	-.098	.0222	.0095	.0102
5.8	-.067	.1194	.0746	.0680	6.8	-.082	.1030	.0880	.0760	7.0	-.091	.0240	.0099	.0106
6.0	-.069	.1216	.0799	.0720	7.0	-.079	.1050	.0920	.0800	7.2	-.088	.0258	.0094	.0103
6.2	-.065	.1237	.0852	.0760	7.2	-.077	.1070	.0960	.0840	7.4	-.086	.0276	.0097	.0107
6.4	-.063	.1247	.0905	.0790	7.4	-.074	.1080	.0990	.0870	7.6	-.083	.0294	.0098	.0108
6.6	-.061	.1248	.0958	.0820	7.6	-.072	.1090	.1020	.0900	7.8	-.081	.0312	.0099	.0110
6.8	-.060	.1243	.1011	.0850	7.8	-.070	.1090	.1070	.0920	8.0	-.079	.0330	.0098	.0109
7.0	-.058	.1234	.1064	.0880	8.0	-.068	.1080	.1100	.0950	8.2	-.077	.0348	.0097	.0108
7.2	-.056	.1225	.1117	.0910	8.2	-.066	.1070	.1110	.0980	8.4	-.075	.0366	.0096	.0107
7.4	-.054	.1216	.1170	.0940	8.4	-.064	.1060	.1140	.1010	8.6	-.073	.0384	.0095	.0106
7.6	-.052	.1207	.1223	.0970	8.6	-.062	.1050	.1170	.1040	8.8	-.072	.0402	.0094	.0105
7.8	-.051	.1197	.1276	.1000	8.8	-.062	.1040	.1200	.1070	9.0	-.070	.0420	.0093	.0104
8.0	-.051	.1187	.1329	.1030	9.0	-.060	.1030	.1230	.1100	9.2	-.069	.0438	.0092	.0103
8.2	-.051	.1177	.1382	.1060	9.2	-.059	.1020	.1260	.1130	9.4	-.067	.0456	.0091	.0102
8.4	-.051	.1167	.1435	.1090	9.4	-.058	.1010	.1290	.1160	9.6	-.067	.0474	.0090	.0101
8.6	-.051	.1157	.1488	.1120	9.6	-.058	.1000	.1320	.1190	9.8	-.067	.0492	.0089	.0100
8.8	-.051	.1147	.1541	.1150	9.8	-.058	.0990	.1350	.1220	10.0	-.067	.0510	.0088	.0099
9.0	-.051	.1137	.1594	.1180	10.0	-.058	.0980	.1380	.1250	10.2	-.067	.0528	.0087	.0098
9.2	-.051	.1127	.1647	.1210	10.2	-.058	.0970	.1410	.1280	10.4	-.067	.0546	.0086	.0097
9.4	-.051	.1117	.1700	.1240	10.4	-.058	.0960	.1440	.1310	10.6	-.067	.0564	.0085	.0096
9.6	-.051	.1107	.1753	.1270	10.6	-.058	.0950	.1470	.1340	10.8	-.067	.0582	.0084	.0095
9.8	-.051	.1097	.1806	.1300	10.8	-.058	.0940	.1500	.1370	11.0	-.067	.0600	.0083	.0094
10.0	-.051	.1087	.1859	.1330	11.0	-.058	.0930	.1530	.1400	11.2	-.067	.0618	.0082	.0093
10.2	-.051	.1077	.1912	.1360	11.2	-.058	.0920	.1560	.1430	11.4	-.067	.0636	.0081	.0092
10.4	-.051	.1067	.1965	.1390	11.4	-.058	.0910	.1590	.1460	11.6	-.067	.0654	.0080	.0091
10.6	-.051	.1057	.2018	.1420	11.6	-.058	.0900	.1620	.1490	11.8	-.067	.0672	.0079	.0090
10.8	-.051	.1047	.2071	.1450	11.8	-.058	.0890	.1650	.1520	12.0	-.067	.0690	.0078	.0089
11.0	-.051	.1037	.2124	.1480	12.0	-.058	.0880	.1680	.1550	12.2	-.067	.0708	.0077	.0088
11.2	-.051	.1027	.2177	.1510	12.2	-.058	.0870	.1710	.1580	12.4	-.067	.0726	.0076	.0087
11.4	-.051	.1017	.2230	.1540	12.4	-.058	.0860	.1740	.1610	12.6	-.067	.0744	.0075	.0086
11.6	-.051	.1007	.2283	.1570	12.6	-.058	.0850	.1770	.1640	12.8	-.067	.0762	.0074	.0085
11.8	-.051	.0997	.2336	.1600	12.8	-.058	.0840	.1800	.1670	13.0	-.067	.0780	.0073	.0084
12.0	-.051	.0987	.2389	.1630	13.0	-.058	.0830	.1830	.1700	13.2	-.067	.0798	.0072	.0083
12.2	-.051	.0977	.2442	.1660	13.2	-.058	.0820	.1860	.1730	13.4	-.067	.0816	.0071	.0082
12.4	-.051	.0967	.2495	.1690	13.4	-.058	.0810	.1890	.1760	13.6	-.067	.0834	.0070	.0081
12.6	-.051	.0957	.2548	.1720	13.6	-.058	.0800	.1920	.1790	13.8	-.067	.0852	.0069	.0080
12.8	-.051	.0947	.2601	.1750	13.8	-.058	.0790	.1950	.1820	14.0	-.067	.0870	.0068	.0079
13.0	-.051	.0937	.2654	.1780	14.0	-.058	.0780	.1980	.1850	14.2	-.067	.0888	.0067	.0078
13.2	-.051	.0927	.2707	.1810	14.2	-.058	.0770	.2010	.1880	14.4	-.067	.0906	.0066	.0077
13.4	-.051	.0917	.2760	.1840	14.4	-.058	.0760	.2040	.1910	14.6	-.067	.0924	.0065	.0076
13.6	-.051	.0907	.2813	.1870	14.6	-.058	.0750	.2070	.1940	14.8	-.067	.0942	.0064	.0075
13.8	-.051	.0897	.2866	.1900	14.8	-.058	.0740	.2100	.1970	15.0	-.067	.0960	.0063	.0074
14.0	-.051	.0887	.2919	.1930	15.0	-.058	.0730	.2130	.2000	15.2	-.067	.0978	.0062	.0073
14.2	-.051	.0877	.2972	.1960	15.2	-.058	.0720	.2160	.2030	15.4	-.067	.0996	.0061	.0072
14.4	-.051	.0867	.3025	.1990	15.4	-.058	.0710	.2190	.2060	15.6	-.067	.1014	.0060	.0071
14.6	-.051	.0857	.3078	.2020	15.6	-.058	.0700	.2220	.2090	15.8	-.067	.1032	.0059	.0070
14.8	-.051	.0847	.3131	.2050	15.8	-.058	.0690	.2250	.2120	16.0	-.067	.1050	.0058	.0069
15.0	-.051	.0837	.3184	.2080	16.0	-.058	.0680	.2280	.2150	16.2	-.067	.1068	.0057	.0068
15.2	-.051	.0827	.3237	.2110	16.2	-.058	.0670	.2310	.2180	16.4	-.067	.1086	.0056	.0067
15.4	-.051	.0817	.3290	.2140	16.4	-.058	.0660	.2340	.2210	16.6	-.067	.1104	.0055	.0066
15.6	-.051	.0807	.3343	.2170	16.6	-.058	.0650	.2370	.2240	16.8	-.067	.1122	.0054	.0065
15.8	-.051	.0797	.3396	.2200	16.8	-.058	.0640	.2400	.2270	17.0	-.067	.1140	.0053	.0064
16.0	-.051	.0787	.3449	.2230	17.0	-.058	.0630	.2430	.2300	17.2	-.067	.1158	.0052	.0063
16.2	-.051	.0777	.3502	.2260	17.2	-.058	.0620	.2460	.2330	17.4	-.067	.1176	.0051	.0062
16.4	-.051	.0767	.3555	.2290	17.4	-.058	.0610	.2490	.2360	17.6	-.067	.1194	.0050	.0061
16.6	-.051	.0757	.3608	.2320	17.6	-.058	.0600	.2520	.2390	17.8	-.067	.1212	.0049	.0060
16.8	-.051	.0747	.3661	.2350	17.8	-.058	.0590	.2550	.2420	18.0	-.067	.1230	.0048	.0059
17.0	-.051	.0737	.3714	.2380	18.0	-.058	.0580	.2580	.2450	18.2	-.067	.1248	.0047	.0058
17.2	-.051	.0727	.3767	.2410	18.2	-.058	.0570	.2610	.2480	18.4	-.067	.1266	.0046	.0057
17.4	-.051	.0717	.3820	.2440	18.4	-.058	.0560	.2640	.2510	18.6	-.067	.1284	.0045	.0056
17.6	-.051	.0707	.3873	.2470	18.6	-.058	.0550	.2670	.2540	18.8	-.067	.1302	.0044	.0055
17.8	-.051	.0697	.3926	.2500	18.8	-.058	.0540	.2700	.2570	19.0	-.067	.1320	.	



ตารางที่ 1 (ต่อ)

Q3 = 0.60					Q3 = 0.65					Q3 = 0.70				
Q4	LAR 1	LAR 2	LAR 3	LAR 4	Q4	LAR 1	LAR 2	LAR 3	LAR 4	Q4	LAR 1	LAR 2	LAR 3	LAR 4
2.0	-1.411	.7347	.0000	.4951	2.6	-1.329	.2240	.3906	.4318	2.6	-1.368	.2217	.0000	.4352
2.6	-1.188	.2384	.0171	.4090	2.8	-1.074	.2157	.0246	.3463	2.8	-1.198	.2132	.0138	.3651
3.0	-.972	.2180	.0255	.3265	3.0	-.849	.2010	.0320	.2742	3.0	-.987	.2000	.0286	.2916
3.2	-.806	.2001	.0447	.2503	3.2	-.744	.1812	.0440	.2162	3.2	-.820	.1833	.0372	.2319
3.4	-.665	.1791	.0514	.2020	3.4	-.630	.1583	.0464	.1682	3.4	-.704	.1821	.0416	.1821
3.6	-.542	.1539	.0584	.1534	3.6	-.542	.1330	.0435	.1283	3.6	-.604	.1385	.0409	.1406
3.8	-.443	.1273	.0634	.1177	3.8	-.472	.1072	.0377	.0952	3.8	-.529	.1139	.0369	.1040
4.0	-.366	.1003	.0779	.0854	4.0	-.418	.0813	.0300	.0674	4.0	-.467	.0809	.0307	.0760
4.2	-.312	.0746	.0929	.0589	4.2	-.374	.0564	.0215	.0440	4.2	-.419	.0643	.0232	.0522
4.4	-.273	.0486	.1194	.0364	4.4	-.338	.0323	.0126	.0239	4.4	-.379	.0404	.0161	.0312
4.6	-.242	.0244	.1471	.0175	4.6	-.304	.0207	.0127	.0150	4.6	-.344	.0170	.0107	.0130
4.8	-.218	.0120	.1756	.0045	4.8	-.278	.0119	.0119	.0060	4.8	-.317	.0097	.0070	.0072
5.0	-.200	.0020	.2041	.0025	5.0	-.257	.0063	.0100	.0020	5.0	-.294	.0044	.0044	.0030
5.2	-.186	-.0031	.2326	-.0425	5.2	-.242	-.0023	.0072	-.0091	5.2	-.274	-.0014	.0044	.0016
5.4	-.176	-.0092	.2611	-.0834	5.4	-.231	-.0077	.0044	-.0132	5.4	-.257	-.0044	.0024	.0009
5.6	-.169	-.0146	.2896	-.1247	5.6	-.221	-.0131	.0016	-.0174	5.6	-.243	-.0062	.0016	.0004
5.8	-.167	-.0194	.3181	-.1660	5.8	-.210	-.0185	.0000	-.0216	5.8	-.229	-.0067	.0003	.0000
6.0	-.170	-.0237	.3466	-.2073	6.0	-.200	-.0239	-.0022	-.0258	6.0	-.219	-.0125	-.0045	-.0065
6.2	-.171	-.0274	.3751	-.2486	6.2	-.190	-.0291	-.0049	-.0300	6.2	-.209	-.0175	-.0064	-.0734
6.4	-.163	-.0305	.4036	-.2899	6.4	-.181	-.0343	-.0074	-.0342	6.4	-.199	-.0217	-.0064	-.0805
6.6	-.157	-.0331	.4321	-.3312	6.6	-.174	-.0395	-.0099	-.0384	6.6	-.191	-.0254	-.0063	-.0867
6.8	-.151	-.0353	.4606	-.3725	6.8	-.167	-.0447	-.0124	-.0426	6.8	-.180	-.0286	-.0062	-.0929
7.0	-.146	-.0371	.4891	-.4138	7.0	-.161	-.0499	-.0149	-.0468	7.0	-.177	-.0317	-.0060	-.0991
7.2	-.141	-.0385	.5176	-.4551	7.2	-.155	-.0551	-.0174	-.0510	7.2	-.170	-.0342	-.0059	-.1026
7.4	-.137	-.0395	.5461	-.4964	7.4	-.150	-.0603	-.0199	-.0552	7.4	-.165	-.0366	-.0058	-.1072
7.6	-.132	-.0401	.5746	-.5377	7.6	-.148	-.0655	-.0224	-.0594	7.6	-.160	-.0386	-.0058	-.1118
7.8	-.128	-.0404	.6031	-.5790	7.8	-.141	-.0707	-.0249	-.0636	7.8	-.155	-.0406	-.0057	-.1155
8.0	-.124	-.0405	.6316	-.6203	8.0	-.137	-.0759	-.0274	-.0678	8.0	-.151	-.0426	-.0056	-.1193
8.2	-.121	-.0404	.6601	-.6616	8.2	-.130	-.0811	-.0299	-.0720	8.2	-.147	-.0446	-.0054	-.1228
8.4	-.118	-.0401	.6886	-.7031	8.4	-.127	-.0863	-.0324	-.0762	8.4	-.143	-.0466	-.0053	-.1264
8.6	-.115	-.0395	.7171	-.7446	8.6	-.124	-.0915	-.0349	-.0804	8.6	-.139	-.0486	-.0052	-.1299
8.8	-.113	-.0388	.7456	-.7861	8.8	-.121	-.0967	-.0374	-.0846	8.8	-.136	-.0506	-.0051	-.1334
9.0	-.110	-.0379	.7741	-.8276	9.0	-.119	-.1019	-.0399	-.0888	9.0	-.132	-.0526	-.0050	-.1370
9.2	-.108	-.0369	.8026	-.8691	9.2	-.116	-.1071	-.0424	-.0930	9.2	-.127	-.0546	-.0049	-.1406
9.4	-.105	-.0358	.8311	-.9106	9.4	-.114	-.1123	-.0449	-.0972	9.4	-.123	-.0566	-.0048	-.1441
9.6	-.103	-.0347	.8596	-.9521	9.6	-.112	-.1175	-.0474	-.1014	9.6	-.122	-.0586	-.0048	-.1477
9.8	-.101	-.0335	.8881	-.9936	9.8	-.110	-.1227	-.0499	-.1056	9.8	-.120	-.0606	-.0047	-.1512
10.0	-.100	-.0323	.9166	-.1038	10.0	-.108	-.1279	-.0524	-.1098	10.0	-.118	-.0626	-.0046	-.1548

Q3 = 0.75					Q3 = 0.80					Q3 = 0.85				
Q4	LAR 1	LAR 2	LAR 3	LAR 4	Q4	LAR 1	LAR 2	LAR 3	LAR 4	Q4	LAR 1	LAR 2	LAR 3	LAR 4
2.0	-1.324	.2104	.0000	.3903	2.0	-1.225	.1994	.4847	.3254	2.0	-1.303	.1903	.0000	.3408
2.6	-1.097	.2003	.0183	.3119	2.2	-1.023	.1844	.0211	.2687	2.2	-1.145	.1875	.0110	.2912
3.0	-.921	.1830	.0299	.2492	2.4	-.874	.1692	.0295	.2163	2.4	-.973	.1723	.0220	.2332
3.2	-.785	.1658	.0340	.1976	2.6	-.750	.1492	.0325	.1691	2.6	-.850	.1641	.0261	.1855
3.4	-.677	.1480	.0375	.1542	2.8	-.657	.1272	.0333	.1310	2.8	-.752	.1534	.0301	.1434
3.6	-.590	.1264	.0355	.1179	3.0	-.582	.1042	.0303	.0989	3.0	-.665	.1419	.0291	.1117
3.8	-.521	.0964	.0309	.0873	3.2	-.511	.0810	.0254	.0716	3.2	-.577	.1295	.0254	.0829
4.0	-.466	.0724	.0244	.0614	3.4	-.448	.0580	.0192	.0482	3.4	-.519	.1170	.0204	.0582
4.2	-.419	.0492	.0174	.0392	3.6	-.392	.0351	.0123	.0261	3.6	-.472	.1045	.0164	.0370
4.4	-.384	.0264	.0103	.0203	3.8	-.342	.0132	.0030	.0107	3.8	-.430	.0920	.0094	.0193
4.6	-.347	.0154	.0030	.0114	4.0	-.301	.0000	.0000	.0000	4.0	-.393	.0804	.0000	.0102
4.8	-.312	-.0040	-.0030	-.0030	4.2	-.261	-.0201	-.0270	-.0331	4.2	-.358	.0688	.0000	.0012
5.0	-.278	-.0150	-.0100	-.0100	4.4	-.221	-.0401	-.0440	-.0440	4.4	-.323	.0572	.0000	-.0000
5.2	-.244	-.0257	-.0150	-.0150	4.6	-.181	-.0601	-.0601	-.0601	4.6	-.288	.0460	.0000	-.0110
5.4	-.210	-.0353	-.0200	-.0200	4.8	-.141	-.0801	-.0801	-.0801	4.8	-.253	.0348	.0000	-.0220
5.6	-.176	-.0450	-.0250	-.0250	5.0	-.101	-.1001	-.1001	-.1001	5.0	-.218	.0236	.0000	-.0330
5.8	-.142	-.0546	-.0300	-.0300	5.2	-.061	-.1201	-.1201	-.1201	5.2	-.183	.0124	.0000	-.0440
6.0	-.108	-.0642	-.0350	-.0350	5.4	-.021	-.1401	-.1401	-.1401	5.4	-.148	.0012	.0000	-.0550
6.2	-.074	-.0738	-.0400	-.0400	5.6	.019	-.1601	-.1601	-.1601	5.6	-.113	-.0090	.0000	-.0660
6.4	-.040	-.0834	-.0450	-.0450	5.8	.059	-.1801	-.1801	-.1801	5.8	-.078	-.0178	.0000	-.0770
6.6	-.006	-.0930	-.0500	-.0500	6.0	.099	-.2001	-.2001	-.2001	6.0	-.043	-.0266	.0000	-.0880
6.8	.028	-.1026	-.0550	-.0550	6.2	.139	-.2201	-.2201	-.2201	6.2	.002	-.0354	.0000	-.0990
7.0	.062	-.1122	-.0600	-.0600	6.4	.179	-.2401	-.2401	-.2401	6.4	.067	-.0442	.0000	-.1100
7.2	.096	-.1218	-.0650	-.0650	6.6	.219	-.2601	-.2601	-.2601	6.6	.132	-.0530	.0000	-.1210
7.4	.130	-.1314	-.0700	-.0700	6.8	.259	-.2801	-.2801	-.2801	6.8	.197	-.0618	.0000	-.1320
7.6	.164	-.1410	-.0750	-.0750	7.0	.299	-.3001	-.3001	-.3001	7.0	.262	-.0706	.0000	-.1430
7.8	.198	-.1506	-.0800	-.0800	7.2	.339	-.3201	-.3201	-.3201	7.2	.327	-.0794	.0000	-.1540
8.0	.232	-.1602	-.0850	-.0850	7.4	.379	-.3401	-.3401	-.3401	7.4	.392	-.0882	.0000	-.1650
8.2	.266	-.1698	-.0900	-.0900	7.6	.419	-.3601	-.3601	-.3601	7.6	.457	-.0970	.0000	-.1760
8.4	.300	-.1794	-.0950	-.0950	7.8	.459	-.3801	-.3801	-.3801	7.8	.522	-.1058	.0000	-.1870
8.6	.334	-.1890	-.1000	-.1000	8.0	.499	-.4001	-.4001	-.4001	8.0	.587	-.1146	.0000	-.1980
8.8	.368	-.1986	-.1050	-.1050	8.2	.539	-.4201	-.4201	-.4201	8.2	.652	-.1234	.0000	-.2090
9.0	.402	-.2082	-.1100	-.1100	8.4	.579	-.4401	-.4401	-.4401	8.4	.717	-.1322	.0000	-.2200
9.2	.436	-.2178	-.1150	-.1150	8.6	.619	-.4601	-.4601	-.4601	8.6	.782	-.1410	.0000	-.2310
9.4	.470	-.2274	-.1200	-.1200	8.8	.659	-.4801	-.4801	-.4801	8.8	.847	-.1498	.0000	-.2420
9.6	.504	-.2370	-.1250	-.1250	9.0	.699	-.5001	-.5001	-.5001	9.0	.912	-.1586	.0000	-.2530
9.8	.538	-.2466	-.1300	-.1300	9.2	.739	-.5201	-.5201	-.5201	9.2	.977	-.1674	.0000	-.2640
10.0	.572	-.2562	-.1350	-.1350	9.4	.779	-.5401	-.5401	-.5401	9.4	.1042	-.1762	.0000	-.2750

ตารางที่ 4 (ต่อ)

α <sub>3</sub> = 0.90					α <sub>3</sub> = 1.00					α <sub>3</sub> = 1.10				
α <sub>2</sub>	LAR 1	LAR 2	LAR 3	LAR 4	α <sub>2</sub>	LAR 1	LAR 2	LAR 3	LAR 4	α <sub>2</sub>	LAR 1	LAR 2	LAR 3	LAR 4
3.2	-1.277	.1080	.0000	.2180	3.2	-1.253	.1772	.0000	.2620	3.6	-1.215	.1342	.0000	.2279
3.0	-1.083	.1751	.0133	.2548	3.4	-1.169	.1644	.0020	.2890	3.8	-1.108	.1059	.0035	.2013
3.4	-.933	.1586	.0218	.2039	3.6	-1.010	.1509	.0101	.1996	4.2	-.974	.1298	.0125	.1807
3.8	-.814	.1397	.0260	.1615	4.0	-.888	.1333	.0193	.1588	4.4	-.869	.1117	.0197	.1267
4.0	-.717	.1193	.0269	.1358	4.2	-.787	.1182	.0212	.1288	4.6	-.781	.0932	.0165	.0977
4.2	-.634	.0979	.0251	.0953	4.4	-.706	.0943	.0206	.0950	4.8	-.700	.0743	.0158	.0727
4.4	-.573	.0762	.0214	.0691	4.6	-.638	.0761	.0182	.0697	5.0	-.687	.0552	.0128	.0508
4.6	-.522	.0547	.0184	.0468	4.8	-.581	.0539	.0188	.0477	5.2	-.659	.0363	.0108	.0318
4.8	-.478	.0337	.0168	.0273	5.0	-.533	.0340	.0195	.0283	5.4	-.632	.0181	.0089	.0188
5.0	-.439	.0132	.0120	.0162	5.2	-.492	.0166	.0203	.0117	5.6	-.617	.0000	.0080	.0120
5.1	-.422	.0333	.1111	.2326	5.3	-.474	.0192	.1500	.0041	5.6	-.617	.0997	.0270	.0795
5.2	-.407	.0308	.2150	.0725	5.4	-.461	.0317	.0101	.0202	5.7	-.607	.0629	.0279	.0736
5.3	-.394	.0159	.3020	.0116	5.4	-.442	.0132	.0176	.0946	5.8	-.601	.0173	.0240	.0644
5.4	-.381	.0252	.0890	.0182	5.6	-.429	.0222	.0997	.0184	6.0	-.601	.0290	.0183	.0551
5.6	-.353	.0432	.0152	.0290	5.8	-.409	.0395	.0129	.0282	6.2	-.627	.0501	.0153	.0359
5.8	-.328	.0605	.0215	.0405	6.0	-.389	.0562	.0187	.0390	6.4	-.663	.0636	.0108	.0265
6.0	-.317	.0760	.0275	.0500	6.2	-.358	.0721	.0240	.0484	6.6	-.700	.0603	.0059	.0170
6.2	-.301	.0874	.0330	.0587	6.4	-.321	.0873	.0299	.0571	6.8	-.736	.0497	.0009	.0078
6.4	-.287	.1072	.0390	.0664	6.6	-.283	.1019	.0352	.0631	7.0	-.750	.0388	.0000	.0000
6.6	-.273	.1215	.0448	.0728	6.8	-.245	.1150	.0404	.0722	7.2	-.733	.0276	.0000	.0000
6.8	-.262	.1352	.0495	.0805	7.0	-.207	.1271	.0453	.0790	7.4	-.722	.0161	.0000	.0000
7.0	-.252	.1481	.0540	.0886	7.2	-.168	.1380	.0500	.0852	7.6	-.711	.0046	.0000	.0000
7.2	-.242	.1606	.0581	.0972	7.4	-.129	.1480	.0548	.0909	7.8	-.699	.0000	.0000	.0000
7.4	-.233	.1723	.0618	.1063	7.6	-.089	.1570	.0596	.0962	8.0	-.688	.0000	.0000	.0000
7.6	-.223	.1838	.0650	.1159	7.8	-.049	.1650	.0640	.1011	8.2	-.677	.0000	.0000	.0000
7.8	-.210	.1947	.0678	.1259	8.0	-.009	.1720	.0680	.1056	8.4	-.666	.0000	.0000	.0000
8.0	-.202	.2051	.0702	.1363	8.2	.031	.1790	.0717	.1101	8.6	-.655	.0000	.0000	.0000
8.2	-.205	.2151	.0723	.1471	8.4	.071	.1850	.0748	.1141	8.8	-.644	.0000	.0000	.0000
8.4	-.209	.2246	.0740	.1583	8.6	.111	.1900	.0770	.1179	9.0	-.633	.0000	.0000	.0000
8.6	-.214	.2330	.0752	.1700	8.8	.151	.1930	.0780	.1215	9.2	-.622	.0000	.0000	.0000
9.0	-.219	.2423	.0758	.1822	9.0	.191	.1940	.0780	.1249	9.4	-.611	.0000	.0000	.0000
9.2	-.224	.2514	.0758	.1949	9.2	.230	.1930	.0770	.1281	9.6	-.600	.0000	.0000	.0000
9.4	-.229	.2602	.0753	.2081	9.4	.269	.1900	.0750	.1311	9.8	-.589	.0000	.0000	.0000
9.6	-.234	.2687	.0743	.2218	9.6	.308	.1850	.0720	.1338	10.0	-.578	.0000	.0000	.0000
9.8	-.239	.2770	.0728	.2360	9.8	.347	.1790	.0680	.1361	10.2	-.567	.0000	.0000	.0000
10.0	-.244	.2851	.0708	.2507	10.0	.386	.1720	.0630	.1379	10.4	-.556	.0000	.0000	.0000
10.2	-.249	.2929	.0683	.2659	10.2	.425	.1640	.0580	.1392	10.6	-.545	.0000	.0000	.0000
10.4	-.254	.3005	.0653	.2816	10.4	.464	.1550	.0530	.1399	10.8	-.534	.0000	.0000	.0000
10.6	-.259	.3079	.0618	.2978	10.6	.503	.1450	.0480	.1401	11.0	-.523	.0000	.0000	.0000
10.8	-.264	.3151	.0578	.3145	10.8	.542	.1340	.0430	.1397	11.2	-.512	.0000	.0000	.0000
11.0	-.269	.3221	.0533	.3317	11.0	.581	.1220	.0380	.1388	11.4	-.501	.0000	.0000	.0000
11.2	-.274	.3289	.0483	.3494	11.2	.620	.1090	.0330	.1374	11.6	-.490	.0000	.0000	.0000
11.4	-.279	.3355	.0428	.3676	11.4	.659	.0950	.0280	.1355	11.8	-.479	.0000	.0000	.0000
11.6	-.284	.3419	.0368	.3862	11.6	.700	.0800	.0230	.1331	12.0	-.468	.0000	.0000	.0000
11.8	-.289	.3481	.0303	.4053	11.8	.741	.0640	.0180	.1302	12.2	-.457	.0000	.0000	.0000
12.0	-.294	.3541	.0233	.4249	12.0	.782	.0480	.0130	.1268	12.4	-.446	.0000	.0000	.0000
12.2	-.299	.3599	.0158	.4450	12.2	.823	.0320	.0080	.1229	12.6	-.435	.0000	.0000	.0000
12.4	-.304	.3655	.0078	.4656	12.4	.864	.0160	.0030	.1185	12.8	-.424	.0000	.0000	.0000
12.6	-.309	.3709	.0000	.4867	12.6	.905	.0000	.0000	.1136	13.0	-.413	.0000	.0000	.0000
12.8	-.314	.3761	.0000	.5083	12.8	.946	.0000	.0000	.1081	13.2	-.402	.0000	.0000	.0000
13.0	-.319	.3811	.0000	.5304	13.0	.987	.0000	.0000	.1021	13.4	-.391	.0000	.0000	.0000
13.2	-.324	.3859	.0000	.5530	13.2	1.028	.0000	.0000	.0956	13.6	-.380	.0000	.0000	.0000
13.4	-.329	.3905	.0000	.5761	13.4	1.069	.0000	.0000	.0886	13.8	-.369	.0000	.0000	.0000
13.6	-.334	.3949	.0000	.6000	13.6	1.110	.0000	.0000	.0811	14.0	-.358	.0000	.0000	.0000
13.8	-.339	.3991	.0000	.6245	13.8	1.151	.0000	.0000	.0731	14.2	-.347	.0000	.0000	.0000
14.0	-.344	.4031	.0000	.6496	14.0	1.192	.0000	.0000	.0646	14.4	-.336	.0000	.0000	.0000
14.2	-.349	.4069	.0000	.6753	14.2	1.233	.0000	.0000	.0556	14.6	-.325	.0000	.0000	.0000
14.4	-.354	.4105	.0000	.7016	14.4	1.274	.0000	.0000	.0461	14.8	-.314	.0000	.0000	.0000
14.6	-.359	.4139	.0000	.7285	14.6	1.315	.0000	.0000	.0361	15.0	-.303	.0000	.0000	.0000
14.8	-.364	.4171	.0000	.7560	14.8	1.356	.0000	.0000	.0256	15.2	-.292	.0000	.0000	.0000
15.0	-.369	.4201	.0000	.7841	15.0	1.397	.0000	.0000	.0146	15.4	-.281	.0000	.0000	.0000
15.2	-.374	.4229	.0000	.8128	15.2	1.438	.0000	.0000	.0031	15.6	-.270	.0000	.0000	.0000
15.4	-.379	.4255	.0000	.8421	15.4	1.479	.0000	.0000	.0000	15.8	-.259	.0000	.0000	.0000
15.6	-.384	.4279	.0000	.8720	15.6	1.520	.0000	.0000	.0000	16.0	-.248	.0000	.0000	.0000
15.8	-.389	.4301	.0000	.9025	15.8	1.561	.0000	.0000	.0000	16.2	-.237	.0000	.0000	.0000
16.0	-.394	.4321	.0000	.9336	16.0	1.602	.0000	.0000	.0000	16.4	-.226	.0000	.0000	.0000
16.2	-.399	.4339	.0000	.9653	16.2	1.643	.0000	.0000	.0000	16.6	-.215	.0000	.0000	.0000
16.4	-.404	.4355	.0000	.9976	16.4	1.684	.0000	.0000	.0000	16.8	-.204	.0000	.0000	.0000
16.6	-.409	.4369	.0000	1.0305	16.6	1.725	.0000	.0000	.0000	17.0	-.193	.0000	.0000	.0000
16.8	-.414	.4381	.0000	1.0640	16.8	1.766	.0000	.0000	.0000	17.2	-.182	.0000	.0000	.0000
17.0	-.419	.4391	.0000	1.0981	17.0	1.807	.0000	.0000	.0000	17.4	-.171	.0000	.0000	.0000
17.2	-.424	.4400	.0000	1.1328	17.2	1.848	.0000	.0000	.0000	17.6	-.160	.0000	.0000	.0000
17.4	-.429	.4407	.0000	1.1681	17.4	1.889	.0000	.0000	.0000	17.8	-.149	.0000	.0000	.0000
17.6	-.434	.4413	.0000	1.2040	17.6	1.930	.0000	.0000	.0000	18.0	-.138	.0000	.0000	.0000
17.8	-.439	.4418	.0000	1.2405	17.8	1.971	.0000	.0000	.0000	18.2	-.127	.0000	.0000	.0000
18.0	-.444	.4421	.0000	1.2776	18.0	2.012	.0000	.0000	.0000	18.4	-.116	.0000	.0000	.0000
18.2	-.449	.4423	.0000	1.3153	18.2	2.053	.0000	.0000	.0000	18.6	-.105	.0000	.0000	.0000
18.4	-.454	.4424	.0000	1.3536	18.4	2.094	.0000	.0000	.0000	18.8	-.094	.0000	.0000	.0000
18.6	-.459	.4424	.0000	1.3925	18.6	2.135	.0000	.0000	.0000	19.0	-.083	.0000	.0000	.0000
18.8	-.464	.4422	.0000	1.4320	18.8	2.176	.0000	.0000	.0000	19.2	-.072	.0000	.0000	.0000
19.0	-.469	.4419	.0000	1.4721	19.0	2.217	.0000	.0000	.0000	19.4	-.061	.0000	.0000	.0000
19.2	-.474	.4414	.0000	1.5128	19.2	2.258	.0000	.0000	.0000	19.6	-.050	.0000	.0000	.0000
19.4	-.479	.4407	.0000	1.5541	19.4	2.299	.0000	.0000	.0000	19.8	-.039	.0000	.0000	.0000
19.6	-.484	.4399	.0000	1.5960	19.6	2.340	.0000	.0000	.0000	20.0	-.028	.0000	.0000	.0000
19.8	-.489	.4389	.0000	1.6385	19.8	2.381	.0000	.0000	.0000	20.2	-.017	.0000	.0000	.0000
20.0	-.494	.4377	.0000	1.6816	20.0	2.422	.0000	.0000	.0000	20.4	.0000	.0000	.0000	.0000

ตารางที่ 1 (ต่อ)

$\sigma_3 = 1.50$					$\sigma_3 = 1.60$					$\sigma_3 = 1.70$				
$\sigma_0$	LAR 1	LAR 2	LAR 3	LAR 4	$\sigma_0$	LAR 1	LAR 2	LAR 3	LAR 4	$\sigma_0$	LAR 1	LAR 2	LAR 3	LAR 4
5.4	-1.112	.0951	.0000	-1182	6.0	-1.024	.0757	.0000	.0036	6.6	-1.044	.0580	.0000	.0457
5.6	-1.103	.0886	.0000	-1083	6.2	-1.078	.0498	.0000	.0018	6.8	-1.057	.0525	.0000	.0508
5.8	-1.042	.0773	.1949	.0000	6.4	-1.011	.0573	.1699	.0438	7.0	-1.001	.0412	.1027	.0441
6.0	-.957	.0622	.3907	.0477	6.4	-.937	.0430	.3684	.0449	7.2	-.935	.0275	.1513	.0280
6.2	-.885	.0471	.6441	.0403	6.8	-.873	.0267	.6397	.0285	7.4	-.874	.0142	.1143	.0138
6.4	-.824	.0321	.8685	.0313	7.0	-.746	.0224	.6348	.0270	7.6	-.852	.7566	.0694	.7179
6.6	-.688	.0264	.0104	.0594	7.1	-.756	.7718	.0434	.7177	7.6	-.822	-.0250	-.36018	-.0232
6.7	-.747	.0942	.1836	.0859	7.2	-.771	-.0341	.0434	-.0309	7.7	-.806	-.5469	-.0413	-.5000
6.8	-.714	-.0290	-.00978	-.0236	7.3	-.751	-.5924	-.0020	-.0279	7.8	-.784	-.0119	-.1643	-.0187
6.8	-.704	-.0444	-.0746	-.3082	7.4	-.721	-.0127	-.1942	-.0111	8.0	-.745	-.0263	-.3423	-.0212
7.0	-.684	-.0115	-.2004	-.3073	7.6	-.493	-.0250	-.0283	-.0210	8.2	-.709	-.0347	-.0705	-.0306
7.2	-.647	-.0234	-.0449	-.0210	7.8	-.459	-.0284	-.7114	-.0314	8.4	-.678	-.0407	-.0225	-.0377
7.5	-.615	-.0290	-.0154	-.0312	8.0	-.630	-.0311	.0100	-.0406	8.6	-.654	-.0603	-.0109	-.0478
7.6	-.588	-.0520	-.0115	-.0404	8.2	-.602	-.0633	-.0121	-.0409	8.8	-.622	-.0717	-.0138	-.0533
7.8	-.558	-.0648	-.0150	-.0489	8.4	-.577	-.0732	-.0143	-.0560	9.0	-.599	-.0827	-.0167	-.0623
8.0	-.534	-.0747	-.0184	-.0565	8.6	-.552	-.0844	-.0166	-.0626	9.2	-.578	-.0933	-.0194	-.0688
8.2	-.514	-.0891	-.0221	-.0640	8.8	-.524	-.0972	-.0227	-.0699	9.4	-.557	-.1036	-.0226	-.0768
8.4	-.494	-.1007	-.0257	-.0707	9.0	-.512	-.1044	-.0261	-.0743	9.6	-.538	-.1136	-.0254	-.0844
8.6	-.474	-.1110	-.0292	-.0749	9.2	-.494	-.1107	-.0294	-.0819	9.8	-.521	-.1233	-.0284	-.0927
8.8	-.454	-.1223	-.0327	-.0826	9.4	-.480	-.1208	-.0326	-.0872	10.0	-.508	-.1329	-.0316	-.0997
9.0	-.443	-.1330	-.0362	-.0880	9.6	-.465	-.1305	-.0358	-.0922	10.2	-.495	-.1420	-.0346	-.0953
9.2	-.429	-.1431	-.0394	-.0921	9.8	-.452	-.1400	-.0389	-.0969	10.4	-.482	-.1504	-.0375	-.0997
9.4	-.414	-.1528	-.0429	-.0978	10.0	-.438	-.1492	-.0420	-.1013	10.6	-.463	-.1584	-.0403	-.1030
9.6	-.404	-.1622	-.0461	-.1022	10.2	-.426	-.1584	-.0450	-.1064	10.8	-.451	-.1677	-.0431	-.1077
9.8	-.392	-.1713	-.0493	-.1064	10.4	-.415	-.1675	-.0479	-.1093	11.0	-.440	-.1754	-.0458	-.1114
10.0	-.382	-.1803	-.0524	-.1104	10.6	-.404	-.1762	-.0508	-.1120	11.2	-.429	-.1827	-.0485	-.1169
10.2	-.372	-.1887	-.0553	-.1141	10.8	-.394	-.1848	-.0536	-.1158	11.4	-.418	-.1893	-.0511	-.1183
10.4	-.363	-.1969	-.0582	-.1176	11.0	-.383	-.1936	-.0563	-.1198	11.6	-.410	-.1968	-.0537	-.1210
10.6	-.354	-.2049	-.0611	-.1209	11.2	-.377	-.2022	-.0589	-.1234	11.8	-.401	-.2029	-.0562	-.1244
10.8	-.346	-.2127	-.0638	-.1241	11.4	-.368	-.2105	-.0615	-.1260	12.0	-.393	-.2100	-.0586	-.1273
11.0	-.338	-.2202	-.0664	-.1271	11.6	-.360	-.2206	-.0640	-.1288	12.2	-.384	-.2195	-.0610	-.1309
11.2	-.331	-.2273	-.0689	-.1299	11.8	-.352	-.2278	-.0665	-.1318	12.4	-.377	-.2261	-.0633	-.1325
11.4	-.322	-.2339	-.0713	-.1325	12.0	-.346	-.2341	-.0688	-.1346	12.6	-.369	-.2324	-.0656	-.1350
11.6	-.317	-.2404	-.0740	-.1353	12.2	-.339	-.2407	-.0711	-.1364	12.8	-.362	-.2300	-.0678	-.1374
11.8	-.311	-.2478	-.0763	-.1377	12.4	-.332	-.2471	-.0734	-.1380	13.0	-.356	-.2280	-.0699	-.1397
12.0	-.305	-.2544	-.0784	-.1401	12.6	-.326	-.2527	-.0752	-.1411	13.2	-.350	-.2260	-.0720	-.1419
12.2	-.300	-.2607	-.0808	-.1424	12.8	-.321	-.2582	-.0777	-.1434	13.4	-.344	-.2244	-.0741	-.1440
12.4	-.295	-.2662	-.0827	-.1444	13.0	-.316	-.2630	-.0797	-.1455	13.6	-.338	-.2222	-.0761	-.1460
12.6	-.289	-.2726	-.0851	-.1466	13.2	-.311	-.2704	-.0817	-.1475	13.8	-.333	-.2205	-.0780	-.1479
13.0	-.280	-.2802	-.0876	-.1486	13.6	-.306	-.2778	-.0837	-.1495	14.2	-.328	-.2190	-.0799	-.1497
13.2	-.274	-.2878	-.0898	-.1504	13.8	-.301	-.2854	-.0856	-.1514	14.4	-.323	-.2176	-.0817	-.1514
13.4	-.269	-.2954	-.0919	-.1521	14.0	-.296	-.2930	-.0874	-.1532	14.6	-.318	-.2163	-.0835	-.1530
13.6	-.264	-.3030	-.0938	-.1537	14.2	-.291	-.3007	-.0891	-.1549	14.8	-.313	-.2150	-.0852	-.1546
13.8	-.259	-.3106	-.0956	-.1552	14.4	-.286	-.3084	-.0908	-.1565	15.0	-.308	-.2138	-.0868	-.1561
14.0	-.254	-.3182	-.0972	-.1566	14.6	-.281	-.3161	-.0924	-.1580	15.2	-.303	-.2126	-.0884	-.1575
14.2	-.249	-.3258	-.0987	-.1579	14.8	-.276	-.3238	-.0939	-.1594	15.4	-.298	-.2114	-.0899	-.1588
14.4	-.244	-.3334	-.0999	-.1591	15.0	-.271	-.3315	-.0953	-.1607	15.6	-.293	-.2102	-.0913	-.1600
14.6	-.239	-.3410	-.1011	-.1602	15.2	-.266	-.3392	-.0967	-.1620	15.8	-.288	-.2090	-.0927	-.1612
14.8	-.234	-.3486	-.1022	-.1613	15.4	-.261	-.3469	-.0980	-.1632	16.0	-.283	-.2078	-.0940	-.1623
15.0	-.229	-.3562	-.1032	-.1623	15.6	-.256	-.3546	-.0993	-.1643	16.2	-.278	-.2066	-.0953	-.1634
15.2	-.224	-.3638	-.1041	-.1633	15.8	-.251	-.3623	-.1005	-.1654	16.4	-.273	-.2054	-.0965	-.1644
15.4	-.219	-.3714	-.1049	-.1642	16.0	-.246	-.3700	-.1017	-.1664	16.6	-.268	-.2042	-.0977	-.1654
15.6	-.214	-.3790	-.1057	-.1651	16.2	-.241	-.3777	-.1028	-.1674	16.8	-.263	-.2030	-.0988	-.1664
15.8	-.209	-.3866	-.1064	-.1659	16.4	-.236	-.3854	-.1039	-.1683	17.0	-.258	-.2018	-.0999	-.1674
16.0	-.204	-.3942	-.1071	-.1667	16.6	-.231	-.3931	-.1049	-.1692	17.2	-.253	-.2006	-.1009	-.1683
16.2	-.199	-.4018	-.1077	-.1674	16.8	-.226	-.4008	-.1059	-.1700	17.4	-.248	-.1994	-.1019	-.1692
16.4	-.194	-.4094	-.1083	-.1681	17.0	-.221	-.4085	-.1068	-.1708	17.6	-.243	-.1982	-.1028	-.1700
16.6	-.189	-.4170	-.1088	-.1688	17.2	-.216	-.4162	-.1077	-.1716	17.8	-.238	-.1970	-.1037	-.1708
16.8	-.184	-.4246	-.1093	-.1694	17.4	-.211	-.4239	-.1086	-.1724	18.0	-.233	-.1958	-.1046	-.1716
17.0	-.179	-.4322	-.1097	-.1700	17.6	-.206	-.4316	-.1094	-.1731	18.2	-.228	-.1946	-.1054	-.1724
17.2	-.174	-.4398	-.1101	-.1706	17.8	-.201	-.4393	-.1102	-.1738	18.4	-.223	-.1934	-.1062	-.1731
17.4	-.169	-.4474	-.1105	-.1711	18.0	-.196	-.4470	-.1109	-.1745	18.6	-.218	-.1922	-.1070	-.1738
17.6	-.164	-.4550	-.1108	-.1716	18.2	-.191	-.4547	-.1116	-.1751	18.8	-.213	-.1910	-.1077	-.1745
17.8	-.159	-.4626	-.1111	-.1721	18.4	-.186	-.4624	-.1123	-.1757	19.0	-.208	-.1898	-.1084	-.1751
18.0	-.154	-.4702	-.1114	-.1726	18.6	-.181	-.4701	-.1129	-.1763	19.2	-.203	-.1886	-.1091	-.1757
18.2	-.149	-.4778	-.1117	-.1731	18.8	-.176	-.4778	-.1135	-.1768	19.4	-.198	-.1874	-.1097	-.1763
18.4	-.144	-.4854	-.1119	-.1735	19.0	-.171	-.4855	-.1141	-.1773	19.6	-.193	-.1862	-.1103	-.1768
18.6	-.139	-.4930	-.1121	-.1739	19.2	-.166	-.4932	-.1146	-.1778	19.8	-.188	-.1850	-.1109	-.1773
18.8	-.134	-.5006	-.1123	-.1743	19.4	-.161	-.5009	-.1151	-.1783	20.0	-.183	-.1838	-.1114	-.1778
19.0	-.129	-.5082	-.1125	-.1747	19.6	-.156	-.5086	-.1156	-.1788	20.2	-.178	-.1826	-.1119	-.1783
19.2	-.124	-.5158	-.1126	-.1750	19.8	-.151	-.5163	-.1161	-.1792	20.4	-.173	-.1814	-.1124	-.1788
19.4	-.119	-.5234	-.1127	-.1754	20.0	-.146	-.5240	-.1165	-.1796	20.6	-.168	-.1802	-.1129	-.1792
19.6	-.114	-.5310	-.1128	-.1757	20.2	-.141	-.5317	-.1169	-.1800	20.8	-.163	-.1790	-.1133	-.1796
19.8	-.109	-.5386	-.1129	-.1760	20.4	-.136	-.5394	-.1173	-.1804	21.0	-.158	-.1778	-.1137	-.1800
20.0	-.104	-.5462	-.1129	-.1763	20.6	-.131	-.5470	-.1177	-.1807	21.2	-.153	-.1766	-.1141	-.1804
20.2	-.099	-.5538	-.1129	-.1766	20.8	-.126	-.5547	-.1180	-.1810	21.4	-.148	-.1754	-.1145	-.1808
20.4	-.094	-.5614	-.1129	-.1769	21.0	-.121	-.5624	-.1183	-.1813	21.6	-.143	-.1742	-.1148	-.1812
20.6	-.089	-.5690	-.1128	-.1771	21.2	-.116	-.5700	-.1186	-.1815	21.8	-.138	-.1730	-.1151	-.1815
20.8	-.084	-.5766	-.1127	-.1773	21.4	-.111	-.5776	-.1188	-.1817	22.0	-.133	-.1718	-.1154	-.1818
21.0	-.079	-.5842	-.1126	-.1775	21.6	-.106	-.5852	-.1190	-.1818	22.2	-.128	-.1706	-.1157	-.1821
21.2	-.074	-.5918	-.1125	-.1777	21.8	-.101	-.5928	-.1192	-.1819	22.4	-.123	-.1694	-.1159	-.1823
21.4	-.069	-.5994	-.1124	-.1778	22.0	-.096	-.6004							

## ประวัติผู้เขียน

นางสาวนพรัตน์ กระสายทอง เกิดเมื่อวันที่ 18 กุมภาพันธ์ พ.ศ. 2517 ที่กรุงเทพมหานคร สำเร็จการศึกษาระดับปริญญาตรี วิทยาศาสตร์บัณฑิต(วท.บ.) สาขาสถิติประยุกต์ จากมหาวิทยาลัยบูรพา เมื่อปีการศึกษา 2538 และเข้าศึกษาต่อในหลักสูตร สถิติศาสตรมหาบัณฑิต ภาควิชาสถิติ คณะพาณิชยศาสตร์และการบัญชี จุฬาลงกรณ์มหาวิทยาลัย เมื่อปีการศึกษา 2539 โดยได้รับทุนอุดหนุนการศึกษาจากโครงการผลิตและพัฒนาอาจารย์ ทบวงมหาวิทยาลัย ตามความต้องการของ ภาควิชาคณิตศาสตร์ คณะวิทยาศาสตร์ มหาวิทยาลัยบูรพา



สถาบันวิทยบริการ  
จุฬาลงกรณ์มหาวิทยาลัย