Online Supplement for “Allocating Protection Resources to Facilities When the Effect of Protection is Uncertain”

by Hugh Medal, Ed Pohl, and Manuel Rossetti

immediate

1 Number of Scenarios for Each Problem Instance

Table 1: Number of scenarios for problem instances.

Number of facilities (J)	Number of capacity levels (L)	All-Exposed	Half-Exposed	Conditional
4	2	16	16	128
4	3	81	81	648
4	4	256	256	2048
8	2	256	256	2048
8	3	6561	6561	52488
8	4	65536	65536	524288
6	2	64	64	512
6	3	729	729	5832
6	4	4096	4096	32768
9	2	512	512	4096
9	3	19683	19683	157464
9	4	262144	262144	2097152

2 P-Values for ANOVA Tests

Figures 1a and 1b show the P-Values resulting from an ANOVA test that assessed the significance of the number of allocation levels modeled (K) (Figure 1a) and the number of capacity levels modeled (L) (Figure 1b) on the relative model error. The gray square indicates that there were not enough results to perform an ANOVA tests because the L-Shaped algorithm did not return a feasible solution within the allotted time limit.

Figure 1a shows that the number of allocation levels modeled (K) is almost always significant, validating finding F1 from our sensitivity analysis. Figure 1b shows that the number of capacity levels modeled (L) is usually not significant, validating finding F2.

(a) Significance of factor K

(b) Significance of factor L

Figure 1: Results of ANOVA tests: P-Values for significance of factors