The SIZES Test Problems

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The SIZES test problem suite consists of 3 instances of a two-stage multi-period stochastic mixed integer program arising in the product substitution applications. The problem formulation is described in [1]. The problems have mixed-integer variables in both stages.

DATA:

The SMPS data for the three problem instances are contained in the zip file sizes.zip. The zip file includes 1 core and 3 stoch files corresponding to three scenario numbers (3,5, and 10). The zip file also includes the deterministic equivalent of the 3 instances in MPS format. The size of the deterministic equivalent problem for three instances are tabulated below.

Problem	Scen	Cols	Rows	Binaries
SIZES3	3	300	124	40
SIZES5	5	450	186	60
SIZES10	10	825	341	110

SOLUTION:

The following table presents the objective function value and performance statistics obtained using the CPLEX 7.0 MIP solver on a DELL Workstation PWS with 2 GB RAM and 2.2 GHz processor. The operating system is Windows 2000. We did some proper preprocessing, namely coefficient reduction. The absolute and relative MIP gaps are 0 for the CPLEX MIP solver. All other options are with CPLEX default values.

Problem	Obj	With Preprocessing			Without Preprocessing		
		Iter	Nodes	CPU	Iter	Nodes	CPU
SIZES3	2.2443432×10^5	2595	198	0.33	6047	347	0.77
SIZES5	2.24486×10^5	15044	1148	2.14	113036	8638	16.36
SIZES10	2.245643×10^5	6246157	406369	1152.69	-	-	$>10^4$

REFERENCES:

[1] S. Jorjani, C. H. Scott, and D. L. Woodruff. Selection of an optimal subset of sizes. Technical report, University of California, Davis, CA, 1995.