The first table gives the upper bounds on the optimal total expected revenues obtained by different benchmark strategies. In this table, LR corresponds to the Lagrangian relaxation method of Topaloglu (2006), DLP corresponds to the deterministic linear program, RLP corresponds to the randomized linear program of Talluri & van Ryzin (1999).

The second table gives the total expected revenues obtained by the bid prices computed through different benchmark strategies. All of the benchmark strategies recompute the bid prices at five equally-spaced time points. We simulate the performance of each benchmark strategy under 100 demand arrival trajectories. In this table, DFD corresponds to the finite differences on the deterministic linear program as described in Bertsimas & Popescu (2003) and RFD corresponds to the randomized version of DFD.

The test problems in the tables are labeled by $(\tau, N, \alpha, \kappa)$, where τ, N, α and κ are as in the description of the data files.

References

Bertsimas, D. & Popescu, I. (2003), 'Revenue management in a dynamic network environment', *Transportation Science* **37**, 257–277.

Talluri, K. & van Ryzin, G. (1999), 'A randomized linear programming method for computing network bid prices', *Transportation Science* **33**(2), 207–216.

Topaloglu, H. (2006), Using Lagrangian relaxation to compute capacity-dependent bid-prices in network revenue management, Technical report, Cornell University, School of Operations Research and Industrial Engineering.
Available at `http://legacy.orie.cornell.edu/~huseyin/publications/publications.html`.

Problem $(\tau, N, \alpha, \kappa)$	LR	DLP	RLP	LR vs. DLP	LR vs. RLP
$(200, 4, 1.0, 4)$	20,439	21,531	$20,904 \mp 19$	5.3	2.3
$(200, 4, 1.0, 8)$	33,305	34,571	$33,947 \mp 41$	3.8	1.9
$(200, 4, 1.2, 4)$	18,938	19,882	$19,672 \mp 18$	5.0	3.9
$(200, 4, 1.2, 8)$	31,737	32,922	$32,715 \mp 40$	3.7	3.1
$(200, 4, 1.6, 4)$	16,600	17,530	$17,452 \mp 17$	5.6	5.1
$(200, 4, 1.6, 8)$	29,413	30,570	$30,494 \mp 40$	3.9	3.7
$(200, 5, 1.0, 4)$	21,298	22,144	$21,677 \mp 22$	4.0	1.8
$(200, 5, 1.0, 8)$	34,393	35,387	$34,903 \mp 45$	2.9	1.5
$(200, 5, 1.2, 4)$	20,184	21,263	$20,778 \mp 21$	5.3	2.9
$(200, 5, 1.2, 8)$	33,165	34,495	$33,989 \mp 45$	4.0	2.5
$(200, 5, 1.6, 4)$	17,704	18,870	$18,674 \mp 19$	6.6	5.5
$(200, 5, 1.6, 8)$	30,594	32,081	$31,875 \mp 43$	4.9	4.2
$(200, 6, 1.0, 4)$	21,128	22,300	$21,648 \mp 20$	5.5	2.5
$(200, 6, 1.0, 8)$	34,178	35,544	$34,890 \mp 43$	4.0	2.1
$(200, 6, 1.2, 4)$	19,649	20,932	$20,555 \mp 19$	6.5	4.6
$(200, 6, 1.2, 8)$	32,566	34,172	$33,792 \mp 42$	4.9	3.8
$(200, 6, 1.6, 4)$	17,304	18,592	$18,446 \mp 18$	7.4	6.6
$(200, 6, 1.6, 8)$	30,170	31,824	$31,679 \mp 41$	5.5	5.0
$(200, 8, 1.0, 4)$	18,975	20,052	$19,321 \mp 19$	5.7	1.8
$(200, 8, 1.0, 8)$	30,490	31,835	$31,086 \mp 40$	4.4	2.0
$(200, 8, 1.2, 4)$	17,472	18,952	$18,378 \mp 18$	8.5	5.2
$(200, 8, 1.2, 8)$	28,908	30,727	$30,142 \mp 40$	6.3	4.3
$(200, 8, 1.6, 4)$	15,295	16,833	$16,495 \mp 17$	10.1	7.8
$(200, 8, 1.6, 8)$	26,661	28,608	$28,255 \mp 39$	7.3	6.0
$(600, 4, 1.0, 4)$	30,995	32,409	$31,579 \mp 34$	4.6	1.9
$(600, 4, 1.0, 8)$	50,444	52,086	$51,255 \mp 71$	3.3	1.6
$(600, 4, 1.2, 4)$	28,668	29,852	$29,642 \mp 30$	4.1	3.4
$(600, 4, 1.2, 8)$	48,054	49,529	$49,317 \mp 68$	3.1	2.6
$(600, 4, 1.6, 4)$	25,148	26,324	$26,253 \mp 29$	4.7	4.4
$(600, 4, 1.6, 8)$	44,555	46,001	$45,928 \mp 66$	3.2	3.1
$(600, 5, 1.0, 4)$	32,254	33,299	$32,723 \mp 38$	3.2	1.5
$(600, 5, 1.0, 8)$	52,071	53,285	$52,685 \mp 76$	2.3	1.2
$(600, 5, 1.2, 4)$	30,604	31,943	$31,404 \mp 34$	4.4	2.6
$(600, 5, 1.2, 8)$	50,282	51,904	$51,340 \mp 73$	3.2	2.1
$(600, 5, 1.6, 4)$	26,936	28,343	$28,183 \mp 30$	5.2	4.6
$(600, 5, 1.6, 8)$	46,497	48,283	$48,105 \mp 70$	3.8	3.5
$(600, 6, 1.0, 4)$	25,541	26,873	$26,130 \mp 34$	5.2	2.3
$(600, 6, 1.0, 8)$	41,412	42,865	$42,113 \mp 69$	3.5	1.7
$(600, 6, 1.2, 4)$	23,687	25,184	$24,756 \mp 30$	6.3	4.5
$(600, 6, 1.2, 8)$	39,307	41,166	$40,732 \mp 66$	4.7	3.6
$(600, 6, 1.6, 4)$	20,817	22,274	$22,132 \mp 28$	7.0	6.3
$(600, 6, 1.6, 8)$	36,391	38,252	$38,103 \mp 64$	5.1	4.7
$(600, 8, 1.0, 4)$	22,960	24,167	$23,375 \mp 31$	5.3	1.8
$(600, 8, 1.0, 8)$	36,933	38,395	$37,595 \mp 64$	4.0	1.8
$(600, 8, 1.2, 4)$	21,102	22,755	$22,150 \mp 28$	7.8	5.0
$(600, 8, 1.2, 8)$	34,931	36,976	$36,368 \mp 62$	5.9	4.1
$(600, 8, 1.6, 4)$	18,500	20,228	$19,890 \mp 26$	9.3	7.5
$(600, 8, 1.6, 8)$	32,247	34,449	$34,105 \mp 59$	6.8	5.8

Table 1: Upper bounds on the optimal total expected revenues.

Problem $(\tau, N, \alpha, \kappa)$	LR	DLP	RLP	DFD	RFD	LR vs. DLP	LR vs. RLP	LR vs. DFD	LR vs. RFD
$(200, 4, 1.0, 4)$	20,018	19,367	19,634	19,573	19,576	3.3	1.9	2.2	2.2
$(200, 4, 1.0, 8)$	32,626	30,713	31,671	31,316	31,764	5.9	2.9	4.0	2.6
$(200, 4, 1.2, 4)$	18,374	17,082	17,643	17,631	17,742	7.0	4.0	4.0	3.4
$(200, 4, 1.2, 8)$	30,852	27,238	29,413	29,028	29,796	11.7	4.7	5.9	3.4
$(200, 4, 1.6, 4)$	15,981	14,251	15,444	15,101	15,413	10.8	3.4	5.5	3.6
$(200, 4, 1.6, 8)$	28,381	23,573	27,204	25,912	27,414	16.9	4.1	8.7	3.4
$(200, 5, 1.0, 4)$	21,181	20,143	20,708	20,457	20,679	4.9	2.2	3.4	2.4
$(200, 5, 1.0, 8)$	34,271	31,881	33,368	32,575	33,463	7.0	2.6	4.9	2.4
$(200, 5, 1.2, 4)$	19,818	18,619	19,253	19,127	19,292	6.1	2.9	3.5	2.7
$(200, 5, 1.2, 8)$	32,766	29,567	31,551	30,849	31,766	9.8	3.7	5.8	3.1
$(200, 5, 1.6, 4)$	17,318	15,432	16,592	16,420	16,708	10.9	4.2	5.2	3.5
$(200, 5, 1.6, 8)$	30,107	24,998	28,628	26,890	29,150	17.0	4.9	10.7	3.2
$(200, 6, 1.0, 4)$	20,709	19,789	20,195	20,015	20,195	4.4	2.5	3.3	2.5
$(200, 6, 1.0, 8)$	33,466	31,084	32,421	31,821	32,565	7.1	3.1	4.9	2.7
$(200, 6, 1.2, 4)$	19,133	18,063	18,451	18,414	18,501	5.6	3.6	3.8	3.3
$(200, 6, 1.2, 8)$	31,808	28,662	30,386	29,862	30,616	9.9	4.5	6.1	3.7
$(200, 6, 1.6, 4)$	16,769	15,250	16,045	15,896	16,115	9.1	4.3	5.2	3.9
$(200, 6, 1.6, 8)$	29,320	24,920	27,792	27,067	28,275	15.0	5.2	7.7	3.6
$(200, 8, 1.0, 4)$	18,217	17,245	17,650	17,536	17,703	5.3	3.1	3.7	2.8
$(200, 8, 1.0, 8)$	29,453	26,973	28,288	27,919	28,573	8.4	4.0	5.2	3.0
$(200, 8, 1.2, 4)$	16,941	15,615	16,036	16,132	16,291	7.8	5.3	4.8	3.8
$(200, 8, 1.2, 8)$	28,130	24,564	26,399	26,092	26,972	12.7	6.2	7.2	4.1
$(200, 8, 1.6, 4)$	14,720	13,335	13,919	13,970	14,131	9.4	5.4	5.1	4.0
$(200, 8, 1.6, 8)$	25,701	21,584	24,173	23,709	24,756	16.0	5.9	7.8	3.7
$(600, 4, 1.0, 4)$	30,640	29,661	29,926	29,816	30,056	3.2	2.3	2.7	1.9
$(600, 4, 1.0, 8)$	49,862	47,106	48,426	47,608	48,818	5.5	2.9	4.5	2.1
$(600, 4, 1.2, 4)$	28,145	26,366	27,261	26,883	27,024	6.3	3.1	4.5	4.0
$(600, 4, 1.2, 8)$	47,162	42,258	45,602	43,955	45,351	10.4	3.3	6.8	3.8
$(600, 4, 1.6, 4)$	24,540	22,177	23,987	22,860	23,776	9.6	2.3	6.8	3.1
$(600, 4, 1.6, 8)$	43,547	37,019	42,589	38,779	42,141	15.0	2.2	11.0	3.2
$(600, 5, 1.0, 4)$	32,112	30,701	31,523	31,081	31,723	4.4	1.8	3.2	1.2
$(600, 5, 1.0, 8)$	51,875	48,576	50,661	49,434	49,995	6.4	2.3	4.7	3.6
$(600, 5, 1.2, 4)$	30,308	28,567	29,463	29,242	29,153	5.7	2.8	3.5	3.8
$(600, 5, 1.2, 8)$	49,899	45,518	48,206	46,721	47,857	8.8	3.4	6.4	4.1
$(600, 5, 1.6, 4)$	26,605	24,195	25,641	24,801	25,333	9.1	3.6	6.8	4.8
$(600, 5, 1.6, 8)$	46,070	39,623	44,456	41,665	43,887	14.0	3.5	9.6	4.7
$(600, 6, 1.0, 4)$	25,310	24,185	24,702	24,461	24,424	4.4	2.4	3.4	3.5
$(600, 6, 1.0, 8)$	40,849	38,068	39,596	38,648	39,225	6.8	3.1	5.4	4.0
$(600, 6, 1.2, 4)$	23,306	21,766	22,437	22,343	22,377	6.6	3.7	4.1	4.0
$(600, 6, 1.2, 8)$	38,704	34,533	37,008	35,898	37,051	10.8	4.4	7.2	4.3
$(600, 6, 1.6, 4)$	20,273	18,441	19,373	19,287	19,445	9.0	4.4	4.9	4.1
$(600, 6, 1.6, 8)$	35,631	30,370	33,599	32,005	34,119	14.8	5.7	10.2	4.2
$(600, 8, 1.0, 4)$	22,269	21,243	21,554	21,657	21,515	4.6	3.2	2.7	3.4
$(600, 8, 1.0, 8)$	36,046	33,274	34,604	34,274	34,665	7.7	4.0	4.9	3.8
$(600, 8, 1.2, 4)$	20,643	19,150	19,706	19,626	19,697	7.2	4.5	4.9	4.6
$(600, 8, 1.2, 8)$	34,277	30,237	32,369	31,992	32,654	11.8	5.6	6.7	4.7
$(600, 8, 1.6, 4)$	17,930	16,407	17,061	17,088	17,105	8.5	4.9	4.7	4.6
$(600, 8, 1.6, 8)$	31,317	26,815	29,609	28,932	29,825	14.4	5.5	7.6	4.8

Table 2: Total expected revenues.