

Appendix I

In this appendix we present a subset of the results for the case with no freezing and early uncertainty resolution in Figures A1-A4 and Tables A1-A6. A Friedman test compares the performance at a significance level of $p = 0.05$. The values of each row shaded in the same color are statistically indistinguishable.

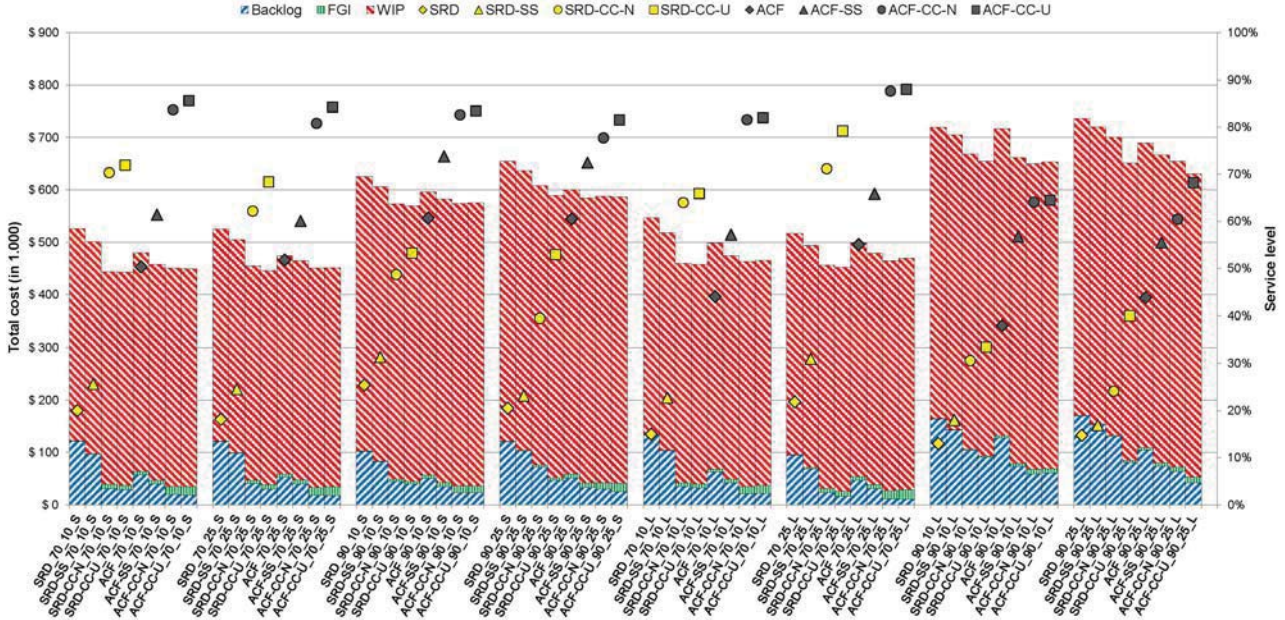


Fig. A1: Average costs and service levels for additive forecast updates, negative correlation and early uncertainty resolution

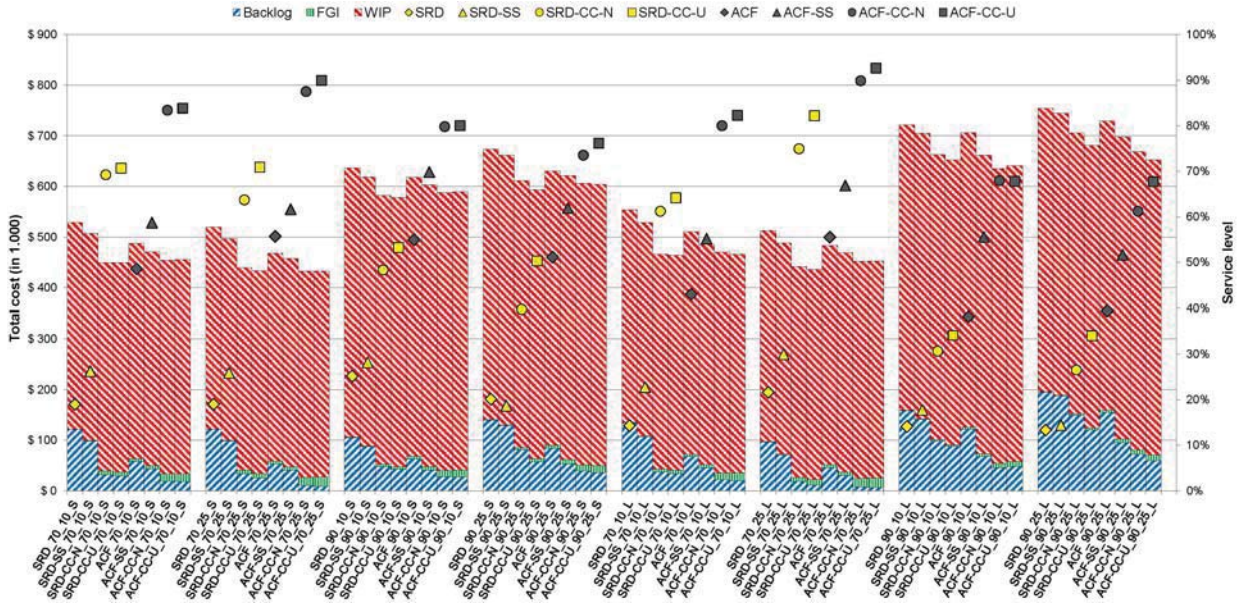


Fig. A2: Average costs and service levels for additive forecast updates, positive correlation and early uncertainty resolution

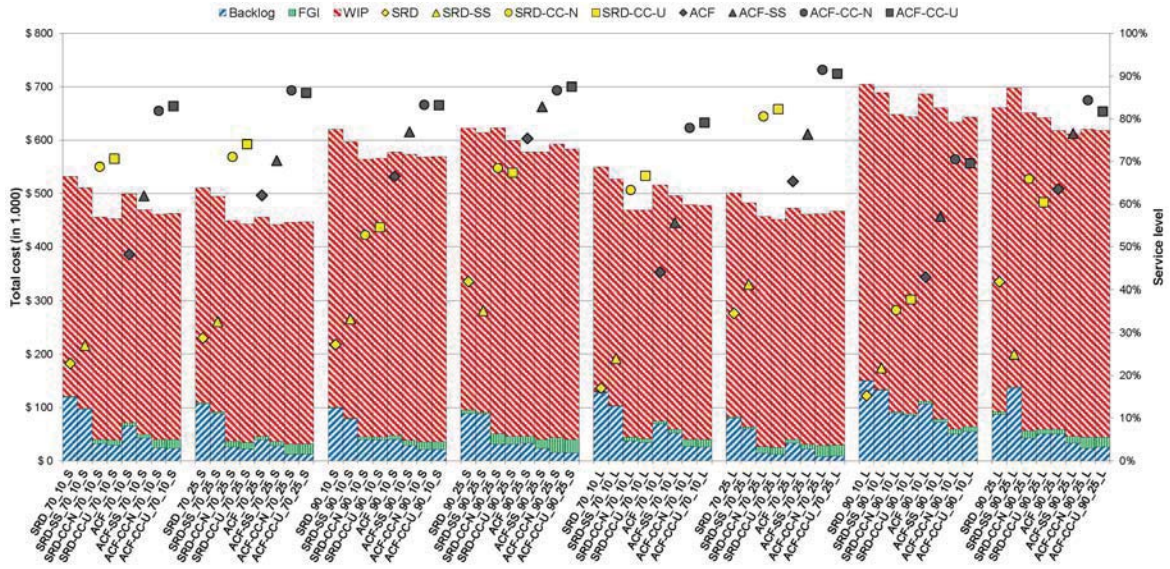


Fig. A3: Average costs and service levels for multiplicative forecast updates, negative correlation and early uncertainty resolution

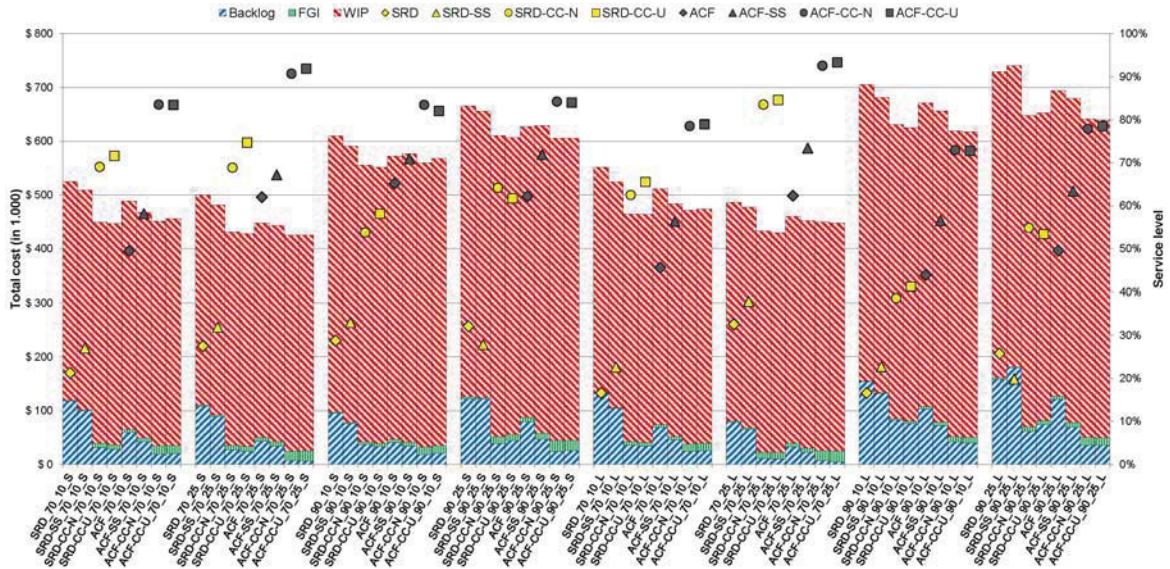


Fig. A4: Average costs and service levels for multiplicative forecast updates, positive correlation and early uncertainty resolution

TABLE AI
EXPECTED PROFIT RELATIVE TO THE SRD MODEL

Correlation		Negative								Positive								
Planning model		SRD	SRD-SS	SRD-CC-N	SRD-CC-U	SRD-CC-U	ACF	ACF-SS	ACF-CC-N	ACF-CC-U	SRD	SRD-SS	SRD-CC-N	SRD-CC-U	ACF	ACF-SS	ACF-CC-N	ACF-CC-U
Additive	S_70_10	1.00	1.05	1.16	1.17	1.09	1.13	1.17	1.17	1.00	1.04	1.16	1.16	1.07	1.11	1.16	1.16	
	S_70_25	1.00	1.04	1.14	1.16	1.10	1.12	1.16	1.17	1.00	1.04	1.16	1.17	1.10	1.12	1.18	1.18	
	S_90_10	1.00	1.03	1.08	1.09	1.05	1.07	1.09	1.09	1.00	1.03	1.08	1.09	1.03	1.06	1.09	1.08	
	S_90_25	1.00	1.03	1.07	1.10	1.09	1.11	1.11	1.12	1.00	1.01	1.09	1.12	1.06	1.09	1.12	1.13	
	L_70_10	1.00	1.06	1.18	1.19	1.09	1.14	1.19	1.18	1.00	1.05	1.17	1.18	1.08	1.13	1.18	1.19	
	L_70_25	1.00	1.04	1.12	1.13	1.04	1.08	1.12	1.11	1.00	1.05	1.14	1.16	1.06	1.09	1.14	1.14	
	L_90_10	1.00	1.03	1.09	1.11	1.02	1.11	1.13	1.13	1.00	1.02	1.09	1.11	1.03	1.11	1.15	1.14	
Multiplicative	S_70_10	1.00	1.03	1.06	1.15	1.06	1.12	1.15	1.15	1.00	1.01	1.08	1.13	1.05	1.12	1.18	1.21	
	S_70_25	1.00	1.04	1.15	1.16	1.06	1.12	1.15	1.15	1.00	1.03	1.14	1.15	1.07	1.11	1.16	1.15	
	S_90_10	1.00	1.03	1.12	1.14	1.10	1.13	1.14	1.14	1.00	1.04	1.14	1.15	1.10	1.12	1.16	1.16	
	S_90_25	1.00	1.03	1.08	1.08	1.07	1.08	1.09	1.09	1.00	1.03	1.08	1.09	1.06	1.06	1.09	1.08	
	L_70_10	1.00	1.01	1.04	1.07	1.08	1.09	1.08	1.09	1.00	1.01	1.10	1.10	1.06	1.07	1.12	1.11	
	L_70_25	1.00	1.05	1.16	1.17	1.07	1.11	1.16	1.16	1.00	1.05	1.18	1.18	1.08	1.14	1.18	1.17	
	L_90_10	1.00	1.03	1.09	1.11	1.06	1.08	1.10	1.09	1.00	1.02	1.11	1.12	1.05	1.07	1.09	1.10	
L_90_25	1.00	0.95	1.05	1.05	1.07	1.09	1.09	1.09	1.00	0.97	1.15	1.13	1.07	1.11	1.19	1.19		

TABLE AII
EXPECTED α -SERVICE LEVEL (in %)

Correlation		Negative								positive								
Planning model		SRD	SRD-SS	SRD-CC-N	SRD-CC-U	SRD-CC-U	ACF	ACF-SS	ACF-CC-N	ACF-CC-U	SRD	SRD-SS	SRD-CC-N	SRD-CC-U	ACF	ACF-SS	ACF-CC-N	ACF-CC-U
Additive	S_70_10	20.0	25.6	70.3	71.9	50.3	61.4	83.7	85.6	19.0	26.3	69.2	70.6	48.6	58.7	83.4	83.8	
	S_70_25	18.1	24.6	62.2	68.3	51.8	60.1	80.8	84.2	19.0	25.9	63.7	70.9	55.7	61.7	87.5	89.9	
	S_90_10	25.4	31.3	48.7	53.3	60.7	73.8	82.6	83.4	25.2	28.2	48.3	53.3	54.9	69.8	79.8	80.0	
	S_90_25	20.5	23.2	39.5	52.9	60.5	72.4	77.7	81.5	20.1	18.7	39.7	50.3	51.2	61.9	73.5	76.2	
	L_70_10	15.0	22.7	64.0	65.9	44.0	57.2	81.5	82.0	14.3	22.8	61.2	64.2	43.0	55.2	80.0	82.2	
	L_70_25	21.9	31.0	71.2	79.2	55.1	65.8	87.6	88.0	21.6	30.0	74.9	82.2	55.5	66.9	89.9	92.6	
	L_90_10	13.0	18.0	30.6	33.5	38.0	56.7	64.1	64.5	14.1	17.8	30.6	34.1	38.2	55.6	67.9	67.8	
Multiplicative	S_70_10	22.8	27.1	68.8	70.6	48.2	61.9	81.9	82.9	21.3	27.1	69.0	71.6	49.5	58.1	83.5	83.5	
	S_70_25	28.8	32.6	71.1	74.0	62.1	70.2	86.7	86.1	27.5	31.9	68.8	74.7	62.0	67.2	90.7	91.9	
	S_90_10	27.2	33.3	52.8	54.6	66.5	76.9	83.3	83.2	28.8	33.0	53.8	58.1	65.2	70.9	83.5	82.1	
	S_90_25	41.9	35.2	68.5	67.4	75.4	82.8	86.7	87.5	32.1	27.9	64.2	61.7	62.2	71.9	84.2	84.0	
	L_70_10	17.1	24.0	63.3	66.7	44.0	55.6	77.9	79.1	16.6	22.6	62.5	65.5	45.6	56.3	78.5	78.9	
	L_70_25	34.6	41.2	80.6	82.2	65.3	76.4	91.5	90.6	32.6	37.9	83.5	84.6	62.3	73.4	92.6	93.3	
	L_90_10	15.3	21.8	35.3	37.8	42.9	57.1	70.5	69.6	16.6	22.8	38.6	41.2	43.9	56.5	72.9	72.8	
L_90_25	41.8	25.0	65.9	60.4	63.5	76.5	84.4	81.7	25.8	19.9	54.9	53.4	49.6	63.4	77.9	78.5		

Table AIII
EXPECTED STABILITY

Correlation		Negative								Positive								
Planning model		SRD	SRD-SS	SRD-CC-N	SRD-CC-U	SRD-CC-U	ACF	ACF-SS	ACF-CC-N	ACF-CC-U	SRD	SRD-SS	SRD-CC-N	SRD-CC-U	ACF	ACF-SS	ACF-CC-N	ACF-CC-U
Additive	S_70_10	1.41	2.08	1.60	1.58	3.36	3.35	3.03	3.06	1.45	2.06	1.63	1.62	3.39	3.37	3.02	2.97	
	S_70_25	1.65	2.29	1.83	1.79	3.43	3.39	3.07	2.95	1.81	2.22	1.74	1.73	3.41	3.33	2.79	2.75	
	S_90_10	3.70	1.61	1.54	1.54	2.88	2.29	2.18	2.33	4.29	1.64	1.52	1.53	3.11	2.68	2.40	2.50	
	S_90_25	4.01	2.06	1.86	3.02	3.21	2.69	2.56	2.69	4.28	2.16	1.88	2.35	3.49	3.44	3.07	3.16	
	L_70_10	1.40	2.12	1.58	1.57	3.49	3.43	3.11	3.15	1.44	2.16	1.62	1.61	3.49	3.40	3.03	2.95	
	L_70_25	1.71	2.42	1.87	1.82	3.55	3.52	3.02	3.07	1.75	2.36	1.79	1.77	3.32	3.34	2.91	2.88	
	L_90_10	2.39	2.13	2.02	1.98	3.44	2.70	2.80	2.71	2.93	2.16	1.97	1.99	3.41	2.97	2.76	2.82	
Multiplicative	S_70_10	2.94	2.54	2.26	3.15	3.29	2.97	2.96	2.77	4.01	2.89	2.41	2.70	3.60	3.53	3.26	3.24	
	S_70_25	1.50	2.02	1.78	1.78	3.41	3.08	2.94	2.84	1.49	2.04	1.70	1.70	3.45	3.27	2.96	2.96	
	S_90_10	2.21	2.22	2.99	2.71	3.34	3.06	3.15	3.12	2.58	2.28	2.41	2.15	3.35	3.34	3.13	3.06	
	S_90_25	4.23	1.58	1.50	1.52	2.70	2.22	2.07	2.16	3.98	1.62	1.53	1.54	2.82	2.67	2.45	2.54	
	L_70_10	7.12	1.96	4.92	5.13	2.82	2.36	2.91	2.80	5.93	2.19	4.04	3.74	3.37	3.47	3.36	3.25	
	L_70_25	1.49	2.23	1.78	1.78	3.37	3.20	3.07	3.05	1.48	2.19	1.70	1.70	3.44	3.28	2.97	3.05	
	L_90_10	2.06	2.55	2.88	2.74	3.39	3.15	3.24	3.15	2.18	2.45	2.52	2.25	3.42	3.29	3.24	3.11	
L_90_25	2.61	2.05	1.92	1.94	3.27	2.68	2.68	2.59	2.72	2.12	1.94	1.93	3.43	3.04	2.79	2.79		
L_90_25	4.94	2.50	5.06	4.89	2.94	2.43	2.90	2.77	5.52	2.82	4.43	4.08	3.55	3.50	3.36	3.26		

TABLE AIV
 EXPECTED PROFIT UNDER $\Delta = 1$ RELATIVE TO $\Delta = 0$ (in %)

Correlation		Negative								Positive							
Planning model		SRD	SRD-SS	SRD-CC-N	SRD-CC-U	ACF	ACF-SS	ACF-CC-N	ACF-CC-U	SRD	SRD-SS	SRD-CC-N	SRD-CC-U	ACF	ACF-SS	ACF-CC-N	ACF-CC-U
Additive	S_70_10	90.0	89.8	88.8	88.1	89.2	90.1	86.0	85.2	90.0	89.8	88.8	88.1	89.2	90.1	86.0	85.2
	S_70_25	90.8	90.4	89.2	88.3	90.6	91.0	87.0	86.1	90.8	90.4	89.2	88.3	90.6	91.0	87.0	86.1
	S_90_10	92.2	92.1	89.9	89.2	91.8	91.9	87.7	86.7	92.2	92.1	89.9	89.2	91.8	91.9	87.7	86.7
	S_90_25	92.3	92.2	89.8	89.8	92.1	92.2	87.9	88.2	92.3	92.2	89.8	89.8	92.1	92.2	87.9	88.2
	L_70_10	91.2	91.5	89.6	89.0	90.8	90.7	86.4	87.3	91.2	91.5	89.6	89.0	90.8	90.7	86.4	87.3
	L_70_25	91.8	91.7	90.1	89.8	91.6	91.0	87.9	87.9	91.8	91.7	90.1	89.8	91.6	91.0	87.9	87.9
	L_90_10	92.0	92.3	90.1	89.6	91.9	91.8	87.7	87.6	92.0	92.3	90.1	89.6	91.9	91.8	87.7	87.6
Multiplicative	L_90_25	92.2	92.3	90.3	90.0	91.8	91.7	88.5	89.0	92.2	92.3	90.3	90.0	91.8	91.7	88.5	89.0
	S_70_10	96.3	96.6	97.0	97.1	96.7	96.9	96.9	97.0	97.5	96.3	96.6	97.0	97.1	96.7	96.9	96.9
	S_70_25	96.3	96.4	97.1	97.0	97.0	97.1	97.2	97.2	97.5	96.3	96.4	97.1	97.0	97.0	97.1	97.2
	S_90_10	96.0	95.8	96.3	96.1	96.4	96.5	96.4	96.4	97.5	96.0	95.8	96.3	96.1	96.4	96.5	96.4
	S_90_25	95.8	95.8	95.9	96.1	95.8	96.2	95.9	96.3	96.9	95.8	95.8	95.9	96.1	95.8	96.2	95.9
	L_70_10	96.1	96.7	96.8	97.1	96.5	96.8	96.8	96.9	97.3	96.1	96.7	96.8	97.1	96.5	96.8	96.8
	L_70_25	96.4	96.7	96.9	97.1	96.6	96.6	97.0	96.9	97.5	96.4	96.7	96.9	97.1	96.6	96.6	97.0
L_90_10	94.9	95.6	95.6	95.5	95.2	95.4	95.3	96.0	96.6	94.9	95.6	95.6	95.5	95.2	95.4	95.3	
L_90_25	95.2	95.0	95.5	95.5	96.1	96.1	95.4	96.0	96.1	95.2	95.0	95.5	95.5	96.1	96.1	95.4	

TABLE AV
 EXPECTED α - SERVICE LEVEL UNDER $\Delta = 1$ RELATIVE TO $\Delta = 0$ (in %)

Correlation		Negative								Positive							
Planning model		SRD	SRD-SS	SRD-CC-N	SRD-CC-U	ACF	ACF-SS	ACF-CC-N	ACF-CC-U	SRD	SRD-SS	SRD-CC-N	SRD-CC-U	ACF	ACF-SS	ACF-CC-N	ACF-CC-U
Additive	S_70_10	79.0	78.4	81.5	78.3	79.6	81.3	80.8	80.0	73.1	72.6	75.3	72.5	74.4	74.5	72.8	73.4
	S_70_25	80.5	81.7	80.9	81.2	79.5	79.0	79.7	79.2	74.1	75.5	74.6	75.1	72.9	75.3	72.4	74.8
	S_90_10	79.9	82.3	79.6	79.8	80.6	76.1	78.4	78.5	74.4	76.2	73.6	73.7	73.9	73.3	72.8	77.1
	S_90_25	80.7	78.3	79.4	77.9	80.9	76.8	80.4	80.3	75.0	73.0	72.9	72.4	73.2	75.0	73.6	75.3
	L_70_10	79.0	76.7	82.9	79.5	80.7	80.0	79.9	80.5	75.1	74.4	73.9	71.8	76.1	75.0	74.0	74.3
	L_70_25	78.3	81.0	80.8	77.1	79.9	77.9	79.1	78.8	72.0	73.1	72.0	72.8	70.6	74.9	74.3	72.6
	L_90_10	80.1	77.2	79.4	80.9	81.2	75.8	78.8	79.0	74.2	72.3	75.9	75.1	74.3	74.0	77.3	73.1
Multiplicative	L_90_25	80.3	81.4	81.4	82.2	80.4	80.3	79.9	82.0	73.0	75.2	74.0	73.4	74.7	77.3	73.6	73.9
	S_70_10	68.4	68.1	71.1	67.5	69.1	71.1	70.4	69.6	65.4	65.0	67.5	64.4	65.6	67.2	66.9	66.1
	S_70_25	69.6	71.6	70.3	71.0	69.0	68.5	69.1	68.5	65.9	67.9	66.7	67.2	65.6	65.2	65.8	65.1
	S_90_10	69.8	72.1	69.1	69.2	70.3	65.0	67.6	67.8	65.7	68.5	65.6	65.8	67.0	62.1	64.4	64.4
	S_90_25	70.1	67.9	68.7	67.4	70.4	66.1	69.9	69.8	67.2	64.9	64.8	64.2	67.6	62.9	66.4	66.4
	L_70_10	69.1	65.5	72.8	69.2	70.3	69.5	69.5	70.4	66.0	63.0	68.9	65.4	66.2	66.0	65.8	66.6
	L_70_25	67.5	70.5	70.7	66.2	69.9	67.3	68.5	68.2	64.5	66.8	67.0	63.2	66.3	64.2	65.0	64.7
L_90_10	69.9	66.5	69.6	71.0	70.4	64.7	68.0	68.2	65.8	63.3	65.3	67.3	67.7	61.9	64.8	64.7	
L_90_25	70.1	70.9	70.6	72.0	70.5	69.6	68.9	71.9	65.8	67.0	67.6	67.8	66.5	65.9	65.4	68.1	

TABLE AVI
 EXPECTED STABILITY UNDER $\Delta = 1$ RELATIVE TO $\Delta = 0$ (in %)

Correlation		Negative								Positive							
Planning model		SRD	SRD-SS	SRD-CC-N	SRD-CC-U	ACF	ACF-SS	ACF-CC-N	ACF-CC-U	SRD	SRD-SS	SRD-CC-N	SRD-CC-U	ACF	ACF-SS	ACF-CC-N	ACF-CC-U
Additive	S_70_10	59.2	73.0	65.4	65.5	82.2	83.2	80.8	82.1	53.4	67.8	59.9	60.1	79.4	80.3	77.5	78.3
	S_70_25	65.1	74.8	69.3	68.7	83.2	83.8	81.2	80.3	62.5	69.5	62.0	61.7	79.6	80.8	76.0	74.6
	S_90_10	85.0	64.0	63.9	61.7	79.5	75.6	74.6	75.5	84.7	58.5	56.9	55.1	77.4	75.1	72.9	73.1
	S_90_25	85.4	72.3	68.6	81.4	82.9	78.6	77.3	79.0	84.0	68.9	63.7	71.9	81.3	80.1	78.1	78.6
	L_70_10	57.8	73.1	63.5	64.7	83.7	84.0	82.1	81.6	52.3	69.3	57.0	58.4	81.3	80.6	78.1	76.8
	L_70_25	66.7	76.8	69.0	68.4	83.3	84.6	80.6	81.4	60.0	71.5	61.0	62.0	79.3	80.1	76.9	76.2
	L_90_10	76.4	73.3	72.5	71.8	83.4	78.7	79.9	79.7	77.3	68.5	66.2	67.1	80.4	77.5	76.5	76.9
Multiplicative	L_90_25	80.0	77.9	75.0	82.5	83.1	80.9	80.2	79.4	82.8	76.9	72.3	76.2	81.9	81.1	78.7	79.3
	S_70_10	75.6	82.7	80.7	81.1	88.6	88.5	87.3	88.0	66.1	76.0	71.5	72.0	84.7	84.9	82.7	83.8
	S_70_25	83.3	83.5	88.3	87.0	89.0	88.9	88.3	88.1	80.3	77.8	79.6	77.2	84.9	85.6	83.8	83.3
	S_90_10	91.9	76.6	76.9	75.0	85.9	84.2	83.4	83.2	87.8	68.5	68.1	66.3	81.5	81.6	80.3	80.3
	S_90_25	94.7	81.5	92.4	93.2	87.9	84.5	87.2	87.3	91.3	77.1	87.3	86.9	85.7	85.5	84.8	84.8
	L_70_10	74.4	83.9	79.4	80.7	89.4	89.4	88.7	87.8	64.7	77.1	70.3	71.6	85.5	85.3	83.6	83.2
	L_70_25	82.5	86.2	87.2	86.7	88.8	89.5	88.4	88.5	77.0	80.0	79.8	77.6	84.8	85.6	84.1	83.9
L_90_10	86.4	82.6	81.9	82.0	89.0	86.3	86.8	86.9	81.8	76.5	74.9	74.7	85.4	83.3	82.3	82.8	
L_90_25	92.4	86.0	93.0	93.0	88.2	85.3	87.0	86.9	90.6	82.6	88.8	88.2	86.3	85.8	84.6	84.6	