Results of the experiments on water consumption problem

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Chapter 1

Window Size 12

This chapter presents the results for the water consumption problem for the window size of 12 values, $k = 12$.

1.1 Water Consumption

1.1.1 MAQ - Mean Absolute Quantile Deviation

Figure 1.1 shows the results using the MAQ error measure for all different setups.

Table 1.1 shows all setups order by the MAQ error.

	MAQ.Q1	MAQ.Q3	MAQ
Quantile RF ntree 1500	2.15	3.15	2.65
Quantile RF ntree 1000	2.15	3.15	2.65
Quantile RF ntree 500	2.15	3.15	2.65
Quantile SVM cost 1 gamma 0.05	2.39	3.37	2.88
Quantile SVM cost 1 gamma 0.001	2.45	3.36	2.9
Quantile SVM cost 10 gamma 0.01	2.39	3.46	2.93
Quantile SVM cost 50 gamma 0.01	2.42	3.46	2.94
Quantile SVM cost 5 gamma 0.001	2.46	3.43	2.94
Iterated QRF ntree 500	2.73	3.16	2.95
Quantile SVM cost 5 gamma 0.01	2.4	3.49	2.95
Iterated QRF ntree 1500	2.72	3.17	2.95
Iterated QRF ntree 1000	2.73	3.17	2.95
Quantile SVM cost 1 gamma 0.1	2.42	3.48	2.95
Quantile SVM cost 1 gamma 0.01	2.4	3.5	2.95
Quantile SVM cost 10 gamma 0.001	2.47	3.47	2.97
Quantile SVM cost 100 gamma 0.01	2.44	3.52	2.98

Quantile SVM cost 50 gamma 0.001	2.46	3.52	2.99
Quantile SVM cost 5 gamma 0.05	2.49	3.52	3.01
Quantile SVM cost 100 gamma 0.001	2.46	3.55	3.01
Quantile SVM cost 10 gamma 0.05	2.56	3.62	3.09
Quantile SVM cost 5 gamma 0.1	2.52	3.73	3.12
Quantile SVM cost 10 gamma 0.1	2.58	3.84	3.21
Quantile RT se 0	2.77	3.87	3.32
Quantile SVM cost 50 gamma 0.05	2.69	3.96	3.32
Quantile RT se 0.5	2.72	3.96	3.34
Quantile RT se 1.5	2.63	4.06	3.34
Quantile RT se 1	2.66	4.04	3.35
Nmodels SVM cost 5 gamma 0.05	2.97	3.89	3.43
Nmodels SVM cost 1 gamma 0.1	3.02	3.86	3.44
Nmodels SVM cost 50 gamma 0.01	3.06	3.82	3.44
Nmodels SVM cost 100 gamma 0.01	3.06	3.85	3.45
Nmodels SVM cost 1 gamma 0.05	3.02	3.89	3.45
Nmodels SVM cost 5 gamma 0.1	3.01	3.97	3.49
Quantile SVM cost 50 gamma 0.1	2.82	4.2	3.51
Nmodels SVM cost 10 gamma 0.05	3.01	4	3.51
Quantile SVM cost 100 gamma 0.05	2.78	4.24	3.51
Nmodels SVM cost 10 gamma 0.1	3.03	3.99	3.51
Nmodels SVM cost 10 gamma 0.01	3.18	3.92	3.55
Quantile QRF ntree 500	3.59	3.56	3.57
Iterated SVM cost 5 gamma 0.1	2.91	4.23	3.57
Quantile QRF ntree 1000	3.59	3.55	3.57
Quantile QRF ntree 1500	3.59	3.56	3.57
Iterated SVM cost 1 gamma 0.1	2.97	4.21	3.59
Iterated RF ntree 1000	3.76	3.43	3.6
Iterated RF ntree 1500	3.77	3.44	3.6
Iterated RF ntree 500	3.77	3.45	3.61
Nmodels SVM cost 5 gamma 0.01	3.24	4	3.62
Nmodels RT se 0	3.38	3.94	3.66
Iterated SVM cost 5 gamma 0.05	3.1	4.24	3.67
Iterated SVM cost 1 gamma 0.05	3.13	4.22	3.68
Nmodels SVM cost 50 gamma 0.1	3.17	4.2	3.68
Iterated SVM cost 10 gamma 0.05	3.07	4.3	3.69
Iterated SVM cost 100 gamma 0.01	3.32	4.06	3.69
Nmodels SVM cost 50 gamma 0.05	3.24	4.14	3.69
Quantile SVM cost 100 gamma 0.1	2.92	4.5	3.71
Iterated SVM cost 10 gamma 0.1	2.98	4.46	3.72
Nmodels SVM cost 100 gamma 0.001	3.43	4.08	3.76

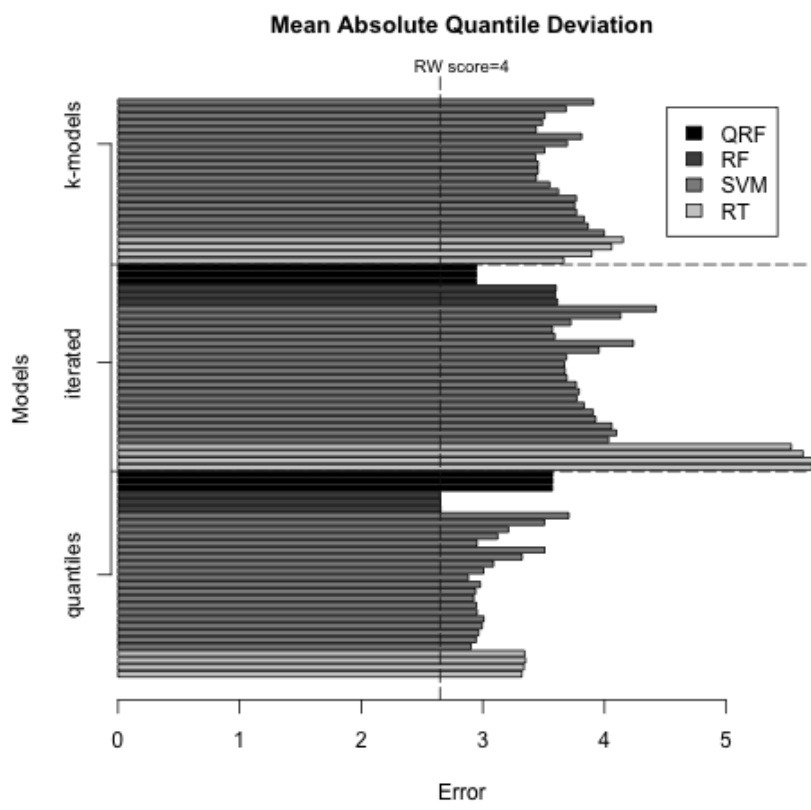|			
Iterated SVM cost 50 gamma 0.01	3.37	4.16	3.77
Nmodels SVM cost 1 gamma 0.01	3.33	4.21	3.77
Nmodels SVM cost 50 gamma 0.001	3.43	4.11	3.77
Iterated SVM cost 5 gamma 0.01	3.24	4.3	3.77
Iterated SVM cost 10 gamma 0.01	3.31	4.27	3.79
Nmodels SVM cost 100 gamma 0.05	3.39	4.24	3.81
Iterated SVM cost 1 gamma 0.01	3.24	4.42	3.83
Nmodels SVM cost 10 gamma 0.001	3.46	4.2	3.83
Nmodels SVM cost 5 gamma 0.001	3.5	4.23	3.86
Nmodels RT se 0.5	3.7	4.09	3.9
Iterated SVM cost 100 gamma 0.001	3.5	4.31	3.9
Nmodels SVM cost 100 gamma 0.1	3.33	4.49	3.91
Iterated SVM cost 50 gamma 0.001	3.49	4.37	3.93
Iterated SVM cost 50 gamma 0.05	3.13	4.78	3.95
Nmodels SVM cost 1 gamma 0.001	3.67	4.32	4
Iterated SVM cost 1 gamma 0.001	3.44	4.63	4.03
Nmodels RT se 1	3.95	4.16	4.06
Iterated SVM cost 10 gamma 0.001	3.53	4.59	4.06
Iterated SVM cost 5 gamma 0.001	3.5	4.7	4.1
Iterated SVM cost 50 gamma 0.1	3.57	4.69	4.13
RW	2.94	5.33	4.13
Nmodels RT se 1.5	4.12	4.18	4.15
Iterated SVM cost 100 gamma 0.05	3.46	5.01	4.24
Iterated SVM cost 100 gamma 0.1	4	4.85	4.42
Iterated RT se 1.5	5.73	5.34	5.54
Iterated RT se 1	5.73	5.53	5.63
Iterated RT se 0	5.8	5.61	5.71
Iterated RT se 0.5	5.8	5.62	5.71

Table 1.1: All setups MAQ

Figure 1.1: Water Consumption

1.1.2 TQE - Total Quantile Error

Figure 1.2 shows the results using the TQE error measure for all different setups.
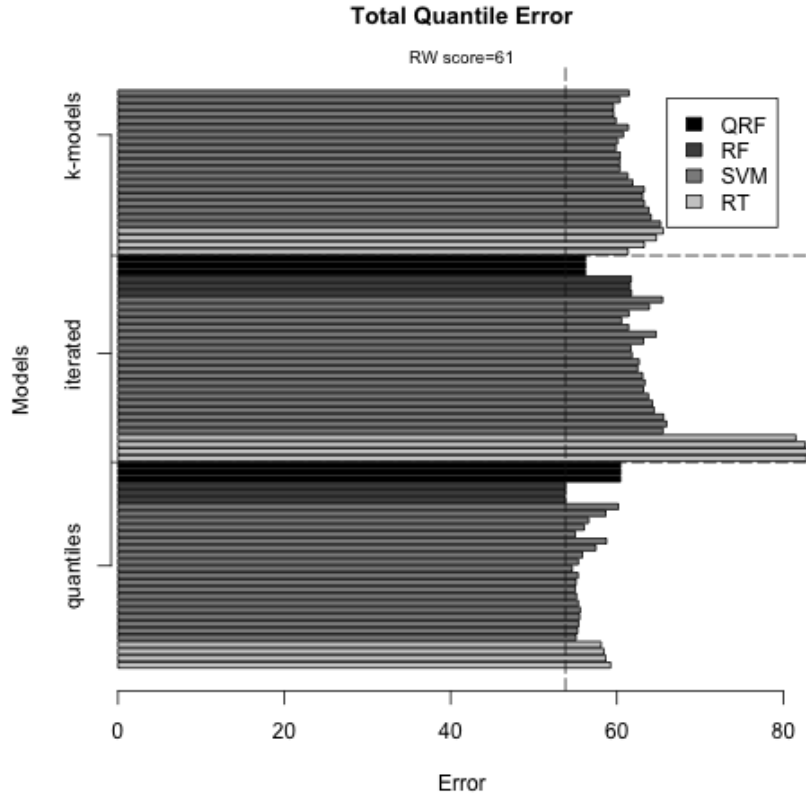

Total Quantile Error

Figure 1.2: Water Consumption

Table 1.2 shows all setups order by the TQE error.

	QTE.Q1	QTE.Q3	QTE
Quantile RF ntree 1500	24.93	28.88	53.81
Quantile RF ntree 1000	24.93	28.88	53.81
Quantile RF ntree 500	24.93	28.89	53.82
Quantile SVM cost 1 gamma 0.05	25.41	29.22	54.63
Quantile SVM cost 10 gamma 0.01	25.46	29.51	54.97
Quantile SVM cost 1 gamma 0.1	25.48	29.51	54.99
Quantile SVM cost 50 gamma 0.01	25.58	29.49	55.08

Quantile SVM cost 1 gamma 0.001	25.52	29.57	55.09
Quantile SVM cost 5 gamma 0.01	25.45	29.68	55.14
Quantile SVM cost 5 gamma 0.001	25.55	29.73	55.27
Quantile SVM cost 100 gamma 0.01	25.67	29.66	55.33
Quantile SVM cost 1 gamma 0.01	25.4	29.96	55.35
Quantile SVM cost 5 gamma 0.05	25.71	29.65	55.36
Quantile SVM cost 10 gamma 0.001	25.55	29.85	55.4
Quantile SVM cost 50 gamma 0.001	25.55	29.98	55.53
Quantile SVM cost 100 gamma 0.001	25.57	30.02	55.59
Quantile SVM cost 10 gamma 0.05	25.94	29.92	55.86
Quantile SVM cost 5 gamma 0.1	25.82	30.25	56.07
Iterated QRF ntree 500	26.82	29.39	56.21
Iterated QRF ntree 1500	26.81	29.41	56.22
Iterated QRF ntree 1000	26.81	29.41	56.23
Quantile SVM cost 10 gamma 0.1	26.05	30.56	56.61
Quantile SVM cost 50 gamma 0.05	26.37	31.1	57.47
Quantile RT se 1.5	26.5	31.6	58.1
Quantile RT se 1	26.76	31.67	58.43
Quantile SVM cost 50 gamma 0.1	26.93	31.74	58.67
Quantile RT se 0.5	27.07	31.61	58.68
Quantile SVM cost 100 gamma 0.05	26.78	31.98	58.75
Quantile RT se 0	27.58	31.66	59.24
Nmodels SVM cost 10 gamma 0.1	28.09	31.51	59.6
Nmodels SVM cost 5 gamma 0.1	28.07	31.55	59.62
Nmodels SVM cost 5 gamma 0.05	27.98	31.89	59.86
Nmodels SVM cost 1 gamma 0.1	28.05	31.84	59.89
Nmodels SVM cost 10 gamma 0.05	28.1	31.99	60.08
Quantile SVM cost 100 gamma 0.1	27.31	32.86	60.17
Nmodels SVM cost 50 gamma 0.1	28.44	31.89	60.34
Nmodels SVM cost 50 gamma 0.01	28.33	32.01	60.34
Nmodels SVM cost 100 gamma 0.01	28.35	31.99	60.34
Nmodels SVM cost 1 gamma 0.05	28.17	32.23	60.4
Quantile QRF ntree 500	29.91	30.53	60.44
Quantile QRF ntree 1000	29.93	30.52	60.45
Quantile QRF ntree 1500	29.93	30.53	60.45
Iterated SVM cost 5 gamma 0.1	27.5	33.06	60.56
Nmodels SVM cost 50 gamma 0.05	28.78	31.99	60.77
RW	27.6	33.48	61.08
Nmodels SVM cost 10 gamma 0.01	28.82	32.48	61.3
Nmodels RT se 0	29.52	31.81	61.33
Nmodels SVM cost 100 gamma 0.05	29.2	32.17	61.37

Iterated SVM cost 1 gamma 0.1	27.87	33.53	61.4
Iterated SVM cost 10 gamma 0.1	27.73	33.71	61.44
Nmodels SVM cost 100 gamma 0.1	28.79	32.67	61.46
Iterated RF ntree 1000	31.13	30.47	61.6
Iterated SVM cost 10 gamma 0.05	28.34	33.33	61.67
Iterated RF ntree 1500	31.19	30.52	61.71
Iterated RF ntree 500	31.19	30.55	61.75
Iterated SVM cost 5 gamma 0.05	28.57	33.25	61.82
Nmodels SVM cost 5 gamma 0.01	29.07	32.84	61.92
Iterated SVM cost 100 gamma 0.01	29.44	33.05	62.49
Iterated SVM cost 1 gamma 0.05	28.76	33.91	62.67
Nmodels SVM cost 100 gamma 0.001	29.84	33.25	63.09
Iterated SVM cost 50 gamma 0.01	29.66	33.43	63.09
Iterated SVM cost 5 gamma 0.01	28.89	34.29	63.19
Iterated SVM cost 50 gamma 0.05	28.54	34.66	63.21
Nmodels SVM cost 1 gamma 0.01	29.59	33.69	63.28
Nmodels RT se 0.5	30.87	32.42	63.29
Nmodels SVM cost 50 gamma 0.001	29.92	33.38	63.3
Iterated SVM cost 10 gamma 0.01	29.25	34.1	63.36
Iterated SVM cost 1 gamma 0.01	28.88	34.91	63.79
Nmodels SVM cost 10 gamma 0.001	30.18	33.65	63.83
Iterated SVM cost 50 gamma 0.1	29.58	34.32	63.9
Nmodels SVM cost 5 gamma 0.001	30.36	33.75	64.11
Iterated SVM cost 100 gamma 0.001	29.85	34.41	64.26
Iterated SVM cost 50 gamma 0.001	29.86	34.6	64.47
Iterated SVM cost 100 gamma 0.05	29.27	35.44	64.71
Nmodels RT se 1	32.03	32.7	64.73
Nmodels SVM cost 1 gamma 0.001	31.07	34.18	65.24
Iterated SVM cost 100 gamma 0.1	31.1	34.39	65.49
Iterated SVM cost 1 gamma 0.001	29.67	35.86	65.52
Nmodels RT se 1.5	32.83	32.75	65.58
Iterated SVM cost 10 gamma 0.001	30.05	35.55	65.6
Iterated SVM cost 5 gamma 0.001	29.92	36.05	65.97
Iterated RT se 1.5	43.71	37.8	81.51
Iterated RT se 1	43.66	38.96	82.63
Iterated RT se 0	43.64	39.16	82.81
Iterated RT se 0.5	44.01	39.54	83.54

Table 1.2: All setups TQE

1.1.3 Utility

Figure 1.3 shows the results using the Utility error measure (larger is better) for all different setups.
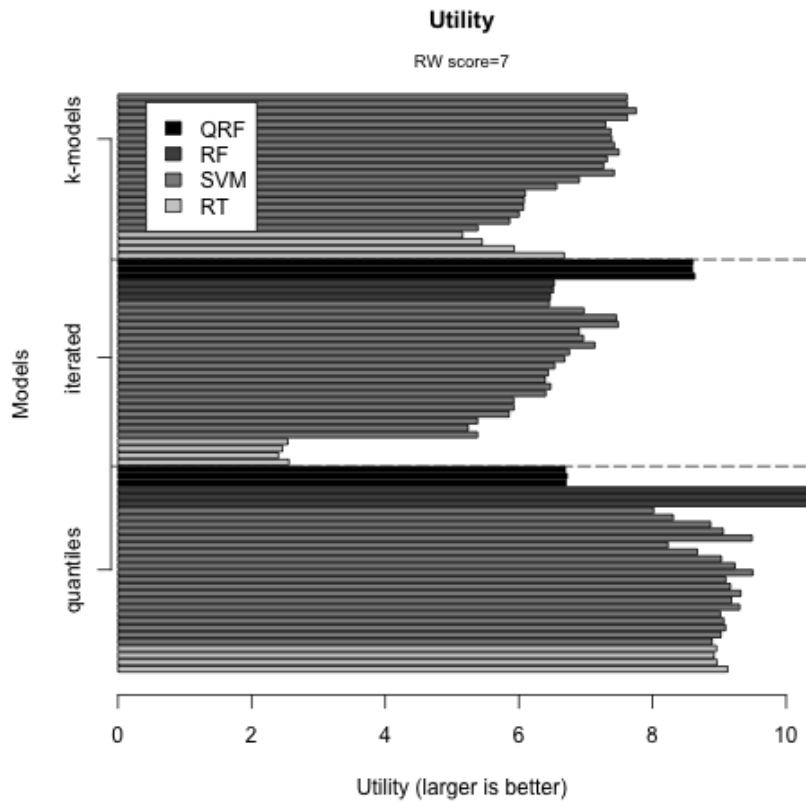

Figure 1.3: Water Consumption

Table 1.3 shows all setups order by the Utility.

	utility
Quantile RF ntree 1000	10.4
Quantile RF ntree 500	10.39
Quantile RF ntree 1500	10.39
Quantile SVM cost 1 gamma 0.05	9.5
Quantile SVM cost 1 gamma 0.1	9.49
Quantile SVM cost 10 gamma 0.01	9.32
Quantile SVM cost 1 gamma 0.01	9.3

Quantile SVM cost 5 gamma 0.05	9.23
Quantile SVM cost 5 gamma 0.01	9.18
Quantile SVM cost 50 gamma 0.01	9.17
Quantile RT se 0	9.12
Quantile SVM cost 100 gamma 0.01	9.1
Quantile SVM cost 10 gamma 0.001	9.09
Quantile SVM cost 50 gamma 0.001	9.07
Quantile SVM cost 5 gamma 0.1	9.06
Quantile SVM cost 10 gamma 0.05	9.03
Quantile SVM cost 5 gamma 0.001	9.02
Quantile SVM cost 100 gamma 0.001	9.02
Quantile RT se 0.5	8.96
Quantile RT se 1.5	8.96
Quantile RT se 1	8.92
Quantile SVM cost 1 gamma 0.001	8.89
Quantile SVM cost 10 gamma 0.1	8.87
Quantile SVM cost 50 gamma 0.05	8.67
Iterated QRF ntree 500	8.63
Iterated QRF ntree 1500	8.6
Iterated QRF ntree 1000	8.6
Quantile SVM cost 50 gamma 0.1	8.31
Quantile SVM cost 100 gamma 0.05	8.23
Quantile SVM cost 100 gamma 0.1	8.02
Nmodels SVM cost 10 gamma 0.1	7.75
Nmodels SVM cost 5 gamma 0.1	7.62
Nmodels SVM cost 50 gamma 0.1	7.62
Nmodels SVM cost 100 gamma 0.1	7.62
Nmodels SVM cost 5 gamma 0.05	7.5
Iterated SVM cost 5 gamma 0.1	7.48
Iterated SVM cost 10 gamma 0.1	7.46
Nmodels SVM cost 10 gamma 0.05	7.43
Nmodels SVM cost 50 gamma 0.01	7.43
Nmodels SVM cost 50 gamma 0.05	7.39
Nmodels SVM cost 100 gamma 0.05	7.38
Nmodels SVM cost 1 gamma 0.05	7.32
Nmodels SVM cost 1 gamma 0.1	7.3
Nmodels SVM cost 100 gamma 0.01	7.27
Iterated SVM cost 50 gamma 0.05	7.14
Iterated SVM cost 50 gamma 0.1	6.97
Iterated SVM cost 100 gamma 0.05	6.97
Nmodels SVM cost 10 gamma 0.01	6.91

Iterated SVM cost 1 gamma 0.1	6.9
Iterated SVM cost 10 gamma 0.05	6.76
Quantile QRF ntree 1000	6.72
Quantile QRF ntree 500	6.71
Quantile QRF ntree 1500	6.69
RW	6.69
Iterated SVM cost 5 gamma 0.05	6.68
Nmodels RT se 0	6.68
Nmodels SVM cost 5 gamma 0.01	6.56
Iterated SVM cost 1 gamma 0.05	6.54
Iterated RF ntree 1500	6.53
Iterated RF ntree 1000	6.51
Iterated SVM cost 10 gamma 0.01	6.48
Iterated RF ntree 500	6.47
Iterated SVM cost 100 gamma 0.1	6.46
Iterated SVM cost 100 gamma 0.01	6.44
Iterated SVM cost 5 gamma 0.01	6.4
Iterated SVM cost 50 gamma 0.01	6.39
Nmodels SVM cost 1 gamma 0.01	6.1
Nmodels SVM cost 100 gamma 0.001	6.08
Nmodels SVM cost 50 gamma 0.001	6.07
Nmodels SVM cost 10 gamma 0.001	6
Nmodels RT se 0.5	5.93
Iterated SVM cost 100 gamma 0.001	5.93
Iterated SVM cost 1 gamma 0.01	5.92
Nmodels SVM cost 5 gamma 0.001	5.86
Iterated SVM cost 50 gamma 0.001	5.85
Nmodels RT se 1	5.45
Nmodels SVM cost 1 gamma 0.001	5.38
Iterated SVM cost 10 gamma 0.001	5.38
Iterated SVM cost 1 gamma 0.001	5.38
Iterated SVM cost 5 gamma 0.001	5.24
Nmodels RT se 1.5	5.16
Iterated RT se 0	2.56
Iterated RT se 1.5	2.54
Iterated RT se 1	2.46
Iterated RT se 0.5	2.4

Table 1.3: All setups Utility

Chapter 2

Window Size 24

This chapter presents the results for the water consumption problem for the window size of 24 values, $k = 24$.

2.1 Water Consumption

2.1.1 MAQ - Mean Absolute Quantile Deviation

Figure 2.1 shows the results using the MAQ error measure for all different setups.

Table 2.1 shows all setups order by the MAQ error.

	MAQ.Q1	MAQ.Q3	MAQ
Quantile RF ntree 1000	1.25	1.99	1.62
Quantile RF ntree 1500	1.25	1.99	1.62
Quantile RF ntree 500	1.25	1.99	1.62
Quantile SVM cost 1 gamma 0.05	1.48	2.21	1.85
Quantile SVM cost 1 gamma 0.1	1.51	2.25	1.88
Quantile SVM cost 50 gamma 0.01	1.51	2.27	1.89
Quantile SVM cost 10 gamma 0.01	1.5	2.35	1.93
Quantile SVM cost 5 gamma 0.05	1.56	2.33	1.95
Quantile SVM cost 5 gamma 0.01	1.51	2.43	1.97
Quantile SVM cost 100 gamma 0.01	1.55	2.4	1.97
Quantile SVM cost 5 gamma 0.1	1.6	2.43	2.01
Quantile SVM cost 1 gamma 0.01	1.56	2.48	2.02
Quantile RT se 0.5	1.48	2.7	2.09
Quantile RT se 0	1.47	2.71	2.09
Quantile SVM cost 10 gamma 0.05	1.64	2.55	2.09
Quantile SVM cost 10 gamma 0.1	1.69	2.54	2.11

Quantile SVM cost 100 gamma 0.001	1.63	2.62	2.12
Quantile SVM cost 1 gamma 0.001	1.76	2.51	2.13
Quantile SVM cost 50 gamma 0.001	1.64	2.62	2.13
Quantile SVM cost 10 gamma 0.001	1.67	2.59	2.13
Quantile SVM cost 5 gamma 0.001	1.7	2.58	2.14
Quantile RT se 1	1.5	2.82	2.16
Quantile RT se 1.5	1.52	2.84	2.18
Quantile SVM cost 50 gamma 0.1	1.81	2.8	2.31
Nmodels SVM cost 5 gamma 0.05	2.08	2.67	2.37
Quantile SVM cost 100 gamma 0.1	1.82	2.93	2.38
Nmodels SVM cost 5 gamma 0.1	2.2	2.57	2.39
Nmodels SVM cost 10 gamma 0.1	2.2	2.57	2.39
Iterated QRF ntree 1500	2.38	2.41	2.4
Iterated QRF ntree 1000	2.38	2.41	2.4
Iterated QRF ntree 500	2.38	2.42	2.4
Nmodels SVM cost 1 gamma 0.1	2.28	2.63	2.46
Nmodels SVM cost 10 gamma 0.05	2.19	2.74	2.47
Nmodels SVM cost 100 gamma 0.01	2.15	2.81	2.48
Quantile SVM cost 50 gamma 0.05	1.97	2.99	2.48
Nmodels SVM cost 1 gamma 0.05	2.18	2.8	2.49
Nmodels SVM cost 50 gamma 0.1	2.23	2.76	2.5
Nmodels SVM cost 50 gamma 0.01	2.22	2.84	2.53
Nmodels SVM cost 100 gamma 0.1	2.3	2.8	2.55
Nmodels SVM cost 10 gamma 0.01	2.33	2.92	2.62
Quantile SVM cost 100 gamma 0.05	2.13	3.16	2.64
Nmodels SVM cost 5 gamma 0.01	2.38	2.98	2.68
Nmodels SVM cost 100 gamma 0.001	2.49	3.14	2.81
Nmodels SVM cost 50 gamma 0.05	2.63	3.02	2.82
Nmodels SVM cost 1 gamma 0.01	2.46	3.25	2.86
Nmodels SVM cost 50 gamma 0.001	2.48	3.23	2.86
Nmodels RT se 0	3.05	2.71	2.88
Nmodels SVM cost 10 gamma 0.001	2.54	3.35	2.94
Nmodels SVM cost 100 gamma 0.05	2.77	3.21	2.99
Nmodels SVM cost 5 gamma 0.001	2.61	3.38	2.99
Iterated SVM cost 1 gamma 0.1	2.95	3.1	3.03
Nmodels RT se 0.5	3.4	2.66	3.03
Nmodels RT se 1	3.57	2.61	3.09
Iterated SVM cost 10 gamma 0.1	2.94	3.36	3.15
Iterated SVM cost 5 gamma 0.1	3.02	3.33	3.17
Nmodels RT se 1.5	3.74	2.62	3.18
Nmodels SVM cost 1 gamma 0.001	2.93	3.43	3.18

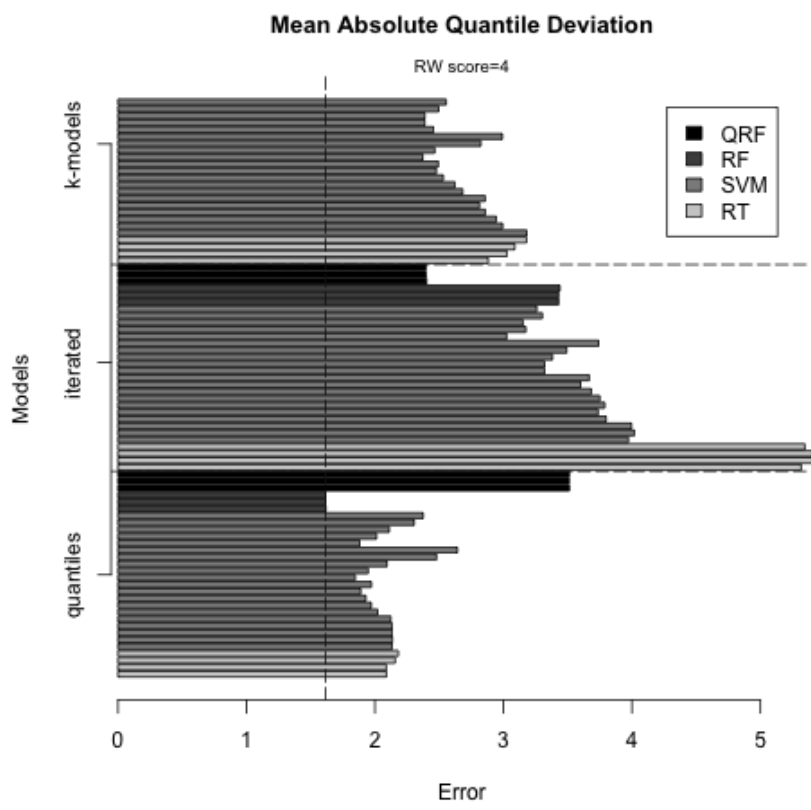|			
Iterated SVM cost 100 gamma 0.1	2.88	3.63	3.26
Iterated SVM cost 50 gamma 0.1	2.92	3.69	3.3
Iterated SVM cost 5 gamma 0.05	3.38	3.26	3.32
Iterated SVM cost 1 gamma 0.05	3.25	3.39	3.32
Iterated SVM cost 10 gamma 0.05	3.37	3.4	3.38
Iterated RF ntree 1000	4.04	2.82	3.43
Iterated RF ntree 500	4.03	2.82	3.43
Iterated RF ntree 1500	4.05	2.83	3.44
Iterated SVM cost 50 gamma 0.05	3.31	3.67	3.49
Quantile QRF ntree 1000	3.78	3.25	3.51
Quantile QRF ntree 1500	3.78	3.25	3.51
Quantile QRF ntree 500	3.78	3.25	3.51
Iterated SVM cost 50 gamma 0.01	3.63	3.57	3.6
Iterated SVM cost 100 gamma 0.01	3.66	3.67	3.67
Iterated SVM cost 10 gamma 0.01	3.66	3.71	3.68
Iterated SVM cost 100 gamma 0.001	3.37	4.11	3.74
Iterated SVM cost 100 gamma 0.05	3.62	3.86	3.74
Iterated SVM cost 5 gamma 0.01	3.63	3.87	3.75
Iterated SVM cost 1 gamma 0.01	3.14	4.44	3.79
RW	2.7	4.89	3.79
Iterated SVM cost 50 gamma 0.001	3.31	4.28	3.8
Iterated SVM cost 1 gamma 0.001	3.31	4.63	3.97
Iterated SVM cost 10 gamma 0.001	3.22	4.78	4
Iterated SVM cost 5 gamma 0.001	3.2	4.84	4.02
Iterated RT se 0	5.35	5.28	5.32
Iterated RT se 1.5	5.67	5.02	5.35
Iterated RT se 1	5.61	5.2	5.4
Iterated RT se 0.5	5.52	5.29	5.41

Table 2.1: All setups MAQ

Figure 2.1: Water Consumption

2.1.2 TQE - Total Quantile Error

Figure 2.2 shows the results using the TQE error measure for all different setups.
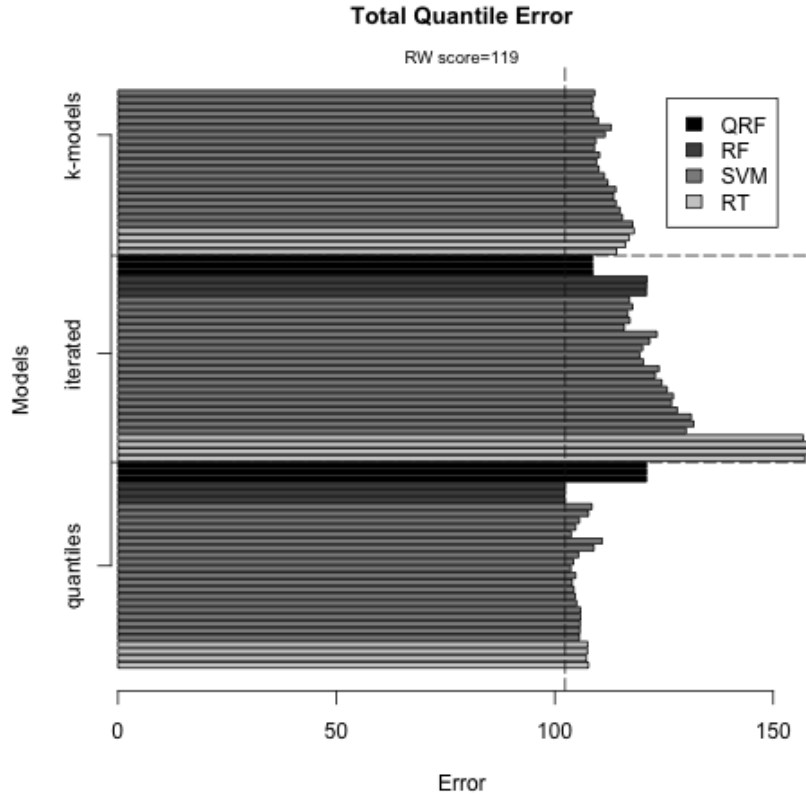

Figure 2.2: Water Consumption

Table 2.2 shows all setups order by the TQE error.

	QTE.Q1	QTE.Q3	QTE
Quantile RF ntree 1000	47.09	55.25	102.34
Quantile RF ntree 1500	47.09	55.25	102.34
Quantile RF ntree 500	47.09	55.26	102.35
Quantile SVM cost 1 gamma 0.05	48.06	55.62	103.68
Quantile SVM cost 1 gamma 0.1	48.15	55.6	103.75
Quantile SVM cost 50 gamma 0.01	48.19	55.78	103.97
Quantile SVM cost 5 gamma 0.05	48.32	55.94	104.26

Quantile SVM cost 10 gamma 0.01	48.06	56.31	104.37
Quantile SVM cost 5 gamma 0.01	48.06	56.6	104.66
Quantile SVM cost 5 gamma 0.1	48.53	56.23	104.76
Quantile SVM cost 100 gamma 0.01	48.35	56.42	104.76
Quantile SVM cost 1 gamma 0.01	48.23	56.77	105
Quantile SVM cost 10 gamma 0.05	48.61	56.83	105.44
Quantile SVM cost 10 gamma 0.1	48.95	56.68	105.63
Quantile SVM cost 1 gamma 0.001	49.04	56.6	105.64
Quantile SVM cost 5 gamma 0.001	48.86	56.91	105.77
Quantile SVM cost 10 gamma 0.001	48.75	57.05	105.81
Quantile SVM cost 100 gamma 0.001	48.55	57.32	105.87
Quantile SVM cost 50 gamma 0.001	48.61	57.32	105.93
Quantile RT se 0.5	48.5	58.73	107.23
Quantile RT se 1	48.52	58.95	107.47
Quantile RT se 1.5	48.59	59	107.59
Quantile SVM cost 50 gamma 0.1	49.56	58.14	107.7
Quantile RT se 0	48.51	59.19	107.7
Quantile SVM cost 100 gamma 0.1	49.65	58.83	108.48
Nmodels SVM cost 10 gamma 0.1	51.38	57.18	108.56
Iterated QRF ntree 1500	52.04	56.61	108.65
Iterated QRF ntree 1000	52.05	56.6	108.65
Nmodels SVM cost 50 gamma 0.1	51.1	57.59	108.69
Iterated QRF ntree 500	52.06	56.63	108.69
Nmodels SVM cost 5 gamma 0.1	51.63	57.3	108.93
Quantile SVM cost 50 gamma 0.05	50.09	58.86	108.95
Nmodels SVM cost 5 gamma 0.05	51.29	57.77	109.06
Nmodels SVM cost 100 gamma 0.1	51.37	57.75	109.12
Nmodels SVM cost 10 gamma 0.05	51.67	57.73	109.4
Nmodels SVM cost 100 gamma 0.01	51.41	58.14	109.55
Nmodels SVM cost 1 gamma 0.1	52.08	57.88	109.96
Nmodels SVM cost 50 gamma 0.01	51.65	58.42	110.06
Nmodels SVM cost 1 gamma 0.05	51.61	58.65	110.25
Quantile SVM cost 100 gamma 0.05	50.95	59.87	110.81
Nmodels SVM cost 10 gamma 0.01	52.23	59.11	111.34
Nmodels SVM cost 50 gamma 0.05	53.21	58.3	111.52
Nmodels SVM cost 5 gamma 0.01	52.56	59.56	112.13
Nmodels SVM cost 100 gamma 0.05	53.78	59.14	112.92
Nmodels SVM cost 100 gamma 0.001	53.2	60.28	113.49
Nmodels SVM cost 1 gamma 0.01	52.92	61.06	113.98
Nmodels SVM cost 50 gamma 0.001	53.21	60.8	114.02
Nmodels RT se 0	56.26	57.89	114.15

Nmodels SVM cost 10 gamma 0.001	53.42	61.48	114.91
Nmodels SVM cost 5 gamma 0.001	53.8	61.69	115.48
Iterated SVM cost 1 gamma 0.1	55.89	60.02	115.91
Nmodels RT se 0.5	58.49	57.66	116.15
Iterated SVM cost 10 gamma 0.1	56.28	60.41	116.69
Nmodels RT se 1	59.55	57.46	117.01
Iterated SVM cost 100 gamma 0.1	55.62	61.46	117.08
Iterated SVM cost 5 gamma 0.1	56.64	60.55	117.19
Iterated SVM cost 50 gamma 0.1	55.97	61.83	117.81
Nmodels SVM cost 1 gamma 0.001	55.62	62.22	117.84
Nmodels RT se 1.5	60.61	57.54	118.14
RW	53.79	65.37	119.15
Iterated SVM cost 5 gamma 0.05	58.78	60.64	119.43
Iterated SVM cost 10 gamma 0.05	58.71	61.41	120.11
Iterated SVM cost 1 gamma 0.05	58.32	61.93	120.25
Iterated RF ntree 500	62.12	58.86	120.97
Quantile QRF ntree 500	60.27	60.72	120.99
Quantile QRF ntree 1500	60.27	60.73	121
Quantile QRF ntree 1000	60.29	60.71	121
Iterated RF ntree 1000	62.17	58.85	121.02
Iterated RF ntree 1500	62.23	58.89	121.11
Iterated SVM cost 50 gamma 0.05	59.36	62.36	121.72
Iterated SVM cost 50 gamma 0.01	60.41	62.59	123
Iterated SVM cost 100 gamma 0.05	60.14	63.25	123.39
Iterated SVM cost 100 gamma 0.01	60.51	63.35	123.86
Iterated SVM cost 10 gamma 0.01	60.83	63.64	124.47
Iterated SVM cost 5 gamma 0.01	60.87	64.85	125.71
Iterated SVM cost 100 gamma 0.001	59.25	67.47	126.72
Iterated SVM cost 1 gamma 0.01	57.91	69.21	127.12
Iterated SVM cost 50 gamma 0.001	59.38	68.66	128.04
Iterated SVM cost 1 gamma 0.001	59.37	70.69	130.05
Iterated SVM cost 10 gamma 0.001	59.37	71.86	131.23
Iterated SVM cost 5 gamma 0.001	59.22	72.6	131.82
Iterated RT se 1.5	84.76	72.1	156.86
Iterated RT se 0	81.65	75.58	157.23
Iterated RT se 1	84.53	74.31	158.84
Iterated RT se 0.5	83.64	75.4	159.04

Table 2.2: All setups TQE

2.1.3 Utility

Figure 2.3 shows the results using the Utility error measure (larger is better) for all different setups.
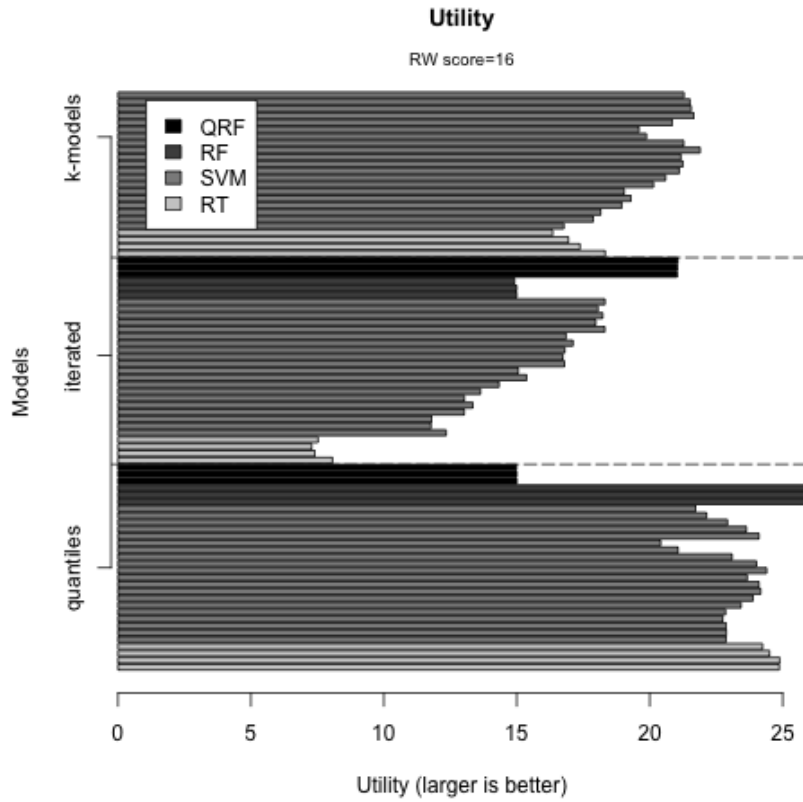

Figure 2.3: Water Consumption

Table 2.3 shows all setups order by the Utility.

	utility
Quantile RF ntree 1000	26.13
Quantile RF ntree 1500	26.12
Quantile RF ntree 500	26.06
Quantile RT se 0.5	24.89
Quantile RT se 0	24.87
Quantile RT se 1	24.5
Quantile SVM cost 1 gamma 0.05	24.4

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Quantile RT se 1.5	24.25
Quantile SVM cost 10 gamma 0.01	24.17
Quantile SVM cost 1 gamma 0.1	24.11
Quantile SVM cost 50 gamma 0.01	24.11
Quantile SVM cost 5 gamma 0.05	24.01
Quantile SVM cost 5 gamma 0.01	23.88
Quantile SVM cost 100 gamma 0.01	23.66
Quantile SVM cost 5 gamma 0.1	23.64
Quantile SVM cost 1 gamma 0.01	23.43
Quantile SVM cost 10 gamma 0.05	23.1
Quantile SVM cost 10 gamma 0.1	22.92
Quantile SVM cost 5 gamma 0.001	22.88
Quantile SVM cost 10 gamma 0.001	22.87
Quantile SVM cost 1 gamma 0.001	22.87
Quantile SVM cost 100 gamma 0.001	22.85
Quantile SVM cost 50 gamma 0.001	22.75
Quantile SVM cost 50 gamma 0.1	22.13
Nmodels SVM cost 5 gamma 0.05	21.89
Quantile SVM cost 100 gamma 0.1	21.73
Nmodels SVM cost 5 gamma 0.1	21.66
Nmodels SVM cost 10 gamma 0.1	21.56
Nmodels SVM cost 50 gamma 0.1	21.51
Nmodels SVM cost 100 gamma 0.1	21.29
Nmodels SVM cost 10 gamma 0.05	21.28
Nmodels SVM cost 100 gamma 0.01	21.24
Nmodels SVM cost 1 gamma 0.05	21.17
Nmodels SVM cost 50 gamma 0.01	21.11
Quantile SVM cost 50 gamma 0.05	21.07
Iterated QRF ntree 1500	21.05
Iterated QRF ntree 1000	21.04
Iterated QRF ntree 500	21.03
Nmodels SVM cost 1 gamma 0.1	20.85
Nmodels SVM cost 10 gamma 0.01	20.6
Quantile SVM cost 100 gamma 0.05	20.41
Nmodels SVM cost 5 gamma 0.01	20.14
Nmodels SVM cost 50 gamma 0.05	19.87
Nmodels SVM cost 100 gamma 0.05	19.6
Nmodels SVM cost 100 gamma 0.001	19.29
Nmodels SVM cost 1 gamma 0.01	19.04
Nmodels SVM cost 50 gamma 0.001	18.95
Nmodels RT se 0	18.32

Iterated SVM cost 100 gamma 0.1	18.32
Iterated SVM cost 1 gamma 0.1	18.31
Iterated SVM cost 10 gamma 0.1	18.23
Nmodels SVM cost 10 gamma 0.001	18.15
Iterated SVM cost 50 gamma 0.1	18.05
Iterated SVM cost 5 gamma 0.1	17.97
Nmodels SVM cost 5 gamma 0.001	17.88
Nmodels RT se 0.5	17.38
Iterated SVM cost 50 gamma 0.05	17.11
Nmodels RT se 1	16.94
Iterated SVM cost 100 gamma 0.05	16.85
Iterated SVM cost 10 gamma 0.05	16.81
Iterated SVM cost 1 gamma 0.05	16.79
Nmodels SVM cost 1 gamma 0.001	16.77
Iterated SVM cost 5 gamma 0.05	16.73
Nmodels RT se 1.5	16.35
RW	15.72
Iterated SVM cost 50 gamma 0.01	15.37
Iterated SVM cost 100 gamma 0.01	15.06
Quantile QRF ntree 500	15
Quantile QRF ntree 1000	15
Iterated RF ntree 500	15
Iterated RF ntree 1000	15
Quantile QRF ntree 1500	14.99
Iterated RF ntree 1500	14.91
Iterated SVM cost 10 gamma 0.01	14.33
Iterated SVM cost 5 gamma 0.01	13.63
Iterated SVM cost 100 gamma 0.001	13.34
Iterated SVM cost 1 gamma 0.01	13.03
Iterated SVM cost 50 gamma 0.001	13.02
Iterated SVM cost 1 gamma 0.001	12.34
Iterated SVM cost 10 gamma 0.001	11.8
Iterated SVM cost 5 gamma 0.001	11.77
Iterated RT se 0	8.07
Iterated RT se 1.5	7.52
Iterated RT se 0.5	7.41
Iterated RT se 1	7.28

Table 2.3: All setups Utility