Online Appendix

A Simulation Details

A.1 Simulation Design

The simulation design follows the approach in Barndorff-Nielsen et al. (2011). Specifically, we simulate over the interval $t \in [0,1]$, which corresponds to 6.5 hours of second-by-second trading activity and a number $N = 23400$ of intervals. The simulations are performed using 1000 replications. The efficient price process is given by the following bivariate stochastic volatility model:

$$\begin{aligned} dp^*_{j,t} &= \mu dt + \rho\sigma_{j,t} dW_{j,t} + \sqrt{1-\rho^2}\sigma_{j,t} dB_t, \quad p^*_{j,0} = 0 \\ \sigma_{j,t} &= \exp(\beta_0 + \beta_1 v_t), \\ dv_{j,t} &= \alpha v_{j,t} dt + dW_{j,t}, \qquad\qquad \text{for } j = 1,2, \end{aligned}$$

where dW_1, dW_2 and dB are standard independent Brownian motions. In this setup, the second term of the price process is an idiosyncratic factor, while the third term is a common factor, whose strength is determined by the squared root of the correlation between p^*_1 and p^*_2, i.e. by $\sqrt{1-\rho^2}$. There is a perfect correlation (leverage) between the innovations of the idiosyncratic factor and σ_j, i.e. $corr(\rho\sigma_j dW_j, \sigma_j) = 1$, while the leverage between the efficient price process and v_j is ρ. The parametrization is also as in Barndorff-Nielsen et al. (2011). We set $\mu = 0.03, \beta_1 = 0.125, \alpha = -0.025, \rho = -0.3$ and $\beta_0 = \beta_1^2/2\alpha$, which is a normalization ensuring that $\mathrm{E}\left[\int_0^1 \sigma^2_{j,u} du\right] = 1$. To initiate the process v_j each day we use its stationary distribution, $v_{j,0} \sim N(0, (-2a)^{-1})$. To generate the bivariate noise process, we start with an *i.i.d.* specification,

$$\text{Noise 1: } \upsilon_j \sim N(0, \omega_j^2) \text{ with } \omega_j^2 = \xi^2 \sqrt{N^{-1}\sum_{i=1}^{N} \sigma^4_{j,i}}.$$

This specification means that the variance of the noise moves together with the spot volatility of the efficient price process. We assign two values to the noise-to-signal ratio 0.001 (low noise regime), and 0.01 (high noise regime). To pose an additional challenge we also consider two specifications, which allow for serial dependence (AR(1) and MA(1)) in the noise.

$$\begin{aligned} \text{Noise 2: } \tilde{\upsilon}_{j,t} &= \phi_j \tilde{\upsilon}_{j,t-1} + \upsilon_{j,t} \text{ for } \phi_1 = -0.5 \text{ and } \phi_2 = -0.2. \\ \text{Noise 3: } \tilde{\upsilon}_{j,t} &= \upsilon_{j,t} + \theta_j \upsilon_{j,t-1} \text{ for } \theta_1 = -0.7 \text{ and } \theta_2 = -0.4. \end{aligned}$$

To obtain different scenarios in terms of trading activity we generate random Poisson sampling times with constant intensities η_1 and η_2 for asset 1 and 2, respectively. This allows us to study the impact of non-synchronous trading and assess the two synchronization schemes, refresh time versus tick time. We consider 3600 scenarios for each noise model by varying $1/\eta_1$ and $1/\eta_2$ from 1 to 60. For example, the pair $(1/\eta_1, 1/\eta_2) = (1/\lambda_1, 1/\lambda_2) = (10, 60)$ means that on average p^*_1 and p^*_2 is observed every 10 and 60 seconds, respectively.

A.2 Practical Issues

In our approach there are two parameters that need to be chosen: Q - the number of lags for the (cross) autocovariance function of the noise processes, and S - the number of subsamples. To choose S in the univariate case we rely on results derived in Nolte & Voev (2012), who provide the theoretical foundations[18] of how to choose S in the *i.i.d.* noise case. We denote this S as S^* and we use it as an indication of how to choose S for all noise models in both the univariate and multivariate estimation. The choice of Q should be data-driven as it depends on the serial dependence of the noise process. In practise we start with a "base scenario", which sets $S = S^*$ and $Q = 5$. Then, we perform a sensitivity analysis[19] to test whether our results can be further improved by selecting different values of S and Q. The values that minimize the RMSE in each case consist our "optimal scenario". Specifically, the optimal scenario for the univariate estimation is $S = S^*$ and $Q = 0$ for the *i.i.d.* noise model and $Q = 2$ for the 2 dependant noise cases. The optimal scenario for the multivariate estimation is $S = S^*$ and $Q = 0$ across all noise models.

Although the aforementioned sensitivity analysis is difficult to be implemented in a non-simulation based exercise, it provides insightful findings on how to choose S and Q in practise. On the one hand, a Q larger than 0 might be beneficial when noise exhibits high dependence, especially for assets with very active trading activity. However, one might be conservative, as variance also increases with Q. On the other hand, a higher S might further improve the estimation precision when the trading frequency of the price processes is low. In our sensitivity analysis this occurs in the region of $\lambda_1, \lambda_2 > 50$ mainly for the *i.i.d.* noise case. Values higher than $S = 1.5S^*$ do not improve the estimation precision.

A few remarks on the implementation of the competing estimators are required. The multivariate Parzen kernel is implemented in the spirit of Barndorff-Nielsen et al. (2011). Specifically, we use a refresh time synchronization scheme, with Parzen weights, and with bandwidth $H = 3.51 n^{3/5} \text{ mean}_{j=1,\ldots,d}(\phi_j^2 / RV_{j,1/900})^{2/5}$.The nominator inside the parenthesis approximates the spot variance and is obtained by averaging over subsampled realized variances computed at 60-second grid and dividing by twice the number of returns. The denominator is the realized variance estimator based on 20 min subsampling returns, an approximation for the squared root of the integrated quarticity. To calculate the flat-top realized kernel we follow the recommendations of Varneskov (2016). We use the refresh time sampling scheme, with a Tukey-Hanning type kernel function and tuning parameters $c = H^{-1/2}$ and $b = 2$. The parameter c controls the flat-top region of the weighting function. Finally, we adopt all Varneskov (2016) suggestions for the calculation of the bandwidth.

[18] Briefly, optimal S is given by $S^* = \alpha^* N^{\beta - 1}$, where N is the number of intraday prices, $\beta = \frac{2}{3}\left(1 - \frac{\ln(\ln(N))}{\ln(N)}\right)$, and $\alpha^* = \sqrt[3]{\frac{33.75\omega^4(\pi^2 - 4(\gamma_0^2 + 2\gamma_1))}{IQ}}$. Intuitively, α^* is a noise-to-signal ratio and resembles to a similar quantity which determines the length of the bandwidth in the realized kernel approach.

[19] We do not report these result to save space. However, they are available upon request.

B Performance Evaluation Metrics

In this section, we describe performance evaluation measures we used in out-of-sample asset allocation in Section 5.2 to Section 5.4. We consider five performance measures, i.e. ex post portfolio volatility (VOL), Sharpe ratio (SR), turnover ratio (TO), portolio concentration (CO), and short positions (SP) commonly used in the literature (DeMiguel et al. 2013, Hautsch et al. 2015, Bollerslev et al. 2016).

First, we construct the portfolio volatility measure.

$$VOL_{t+1}^2 = w_t' RCOV_{t+1} w_t \tag{15}$$

where w_t is the optimal GMV portfolio weight we obtained at time t, $RCOV_{t,t+1}$ is five minutes sub-sampled realized covariance matrix at time $t+1$, the annualized mean of the square root of VOL_{t+1}^2 is the ex post portfolio volatility measure (VOL). The lower the portfolio volatility, the better the performance.

Second, we compute Sharpe ratio.

$$SR = \frac{\mu_p}{\sigma_p} \tag{16}$$

where μ_p and σ_p are annualized unconditional mean and volatility of the obtained GMV portfolio.[20] The higher the Sharpe ratio, the better the portfolio performance.

Next, we report portfolio turnover ratio.

$$TO = \sum_{i=1}^{N} |w_t^i - w_{t-1}^i \frac{1 + r_{t-1}^i}{1 + r_{t-1}^p}| \tag{17}$$

where w_t and w_{t-1} are optimal GMV portfolio weights at time t and $t-1$, r_{t-1}^i and r_{t-1}^p are indiviudal stock and portfolio returns at time $t-1$. Portfolio turnover is closely linked to transaction costs, and hence an optimal portfolio should avoid extreme high turnover in practice.

Another portfolio performance measure is portfolio concentration.

$$CO = (\sum_{i=1}^{N} (w_t^i)^2)^{1/2} \tag{18}$$

This measure quantifies the concentrations of weights among different stocks. In practice, portfolios should avoid taking extreme positions in particular assets. The special case is the equal weight portfolio, which provides a lower bound for this measure.

Finally, we also consider short selling positions.

$$SP = \sum_{i=1}^{N} w_t^i 1_{w_t^i < 0} \tag{19}$$

Also, taking too much short selling positions are costly and risky, and hence practical implementation should control for short selling positions. For equal weighted portfolio, the short selling position is zero by construction.

[20] Here we closely follow DeMiguel et al. (2013) and use raw returns to compute Sharpe ratios, our main results remain valid when excess returns are used.

C Simulation Tables and Graphs

Table B1: Noise Model 1 (*i.i.d.*) - Covariance (V12) - BIAS.

	λ^2_{5}	λ^2_{10}	λ^2_{15}	λ^2_{20}	λ^2_{25}	λ^2_{30}	λ^2_{35}	λ^2_{40}	λ^2_{45}	λ^2_{50}	λ^2_{55}	λ^2_{60}
Panel A. OLS V12 (base scenario)												
λ^1_{5}	-0.007	-0.012	-0.018	-0.009	-0.020	-0.025	-0.021	-0.029	-0.024	-0.032	-0.023	-0.018
λ^1_{15}	-0.017	-0.012	-0.011	-0.009	-0.015	-0.014	-0.019	-0.015	-0.020	-0.017	-0.017	-0.018
λ^1_{30}	-0.017	-0.018	-0.008	-0.019	-0.017	-0.007	-0.008	-0.014	-0.018	-0.016	-0.016	-0.018
λ^1_{45}	-0.028	-0.013	-0.023	-0.016	-0.022	-0.013	-0.017	-0.014	-0.016	-0.016	-0.014	-0.014
λ^1_{60}	-0.020	-0.028	-0.014	-0.015	-0.008	-0.024	-0.016	-0.019	-0.017	-0.008	-0.007	-0.009
Panel B. OLS V12 (optimal Q and S)												
λ^1_{5}	-0.007	-0.012	-0.018	-0.009	-0.021	-0.025	-0.021	-0.029	-0.023	-0.032	-0.023	-0.018
λ^1_{15}	-0.017	-0.013	-0.011	-0.009	-0.015	-0.015	-0.019	-0.015	-0.020	-0.017	-0.017	-0.017
λ^1_{30}	-0.018	-0.018	-0.009	-0.019	-0.018	-0.007	-0.010	-0.014	-0.018	-0.016	-0.017	-0.018
λ^1_{45}	-0.028	-0.012	-0.022	-0.016	-0.021	-0.014	-0.017	-0.012	-0.015	-0.017	-0.014	-0.015
λ^1_{60}	-0.019	-0.028	-0.014	-0.014	-0.010	-0.023	-0.016	-0.017	-0.017	-0.007	-0.007	-0.010
Panel C. HY V12												
λ^1_{5}	-0.008	0.025	-0.005	0.049	-0.007	-0.008	-0.035	0.000	0.030	-0.019	0.009	-0.001
λ^1_{15}	-0.012	0.007	0.024	-0.022	0.010	-0.021	0.010	0.000	-0.009	-0.003	0.013	-0.002
λ^1_{30}	-0.019	0.011	0.011	0.009	0.003	0.003	-0.010	0.015	-0.010	-0.002	-0.010	0.001
λ^1_{45}	0.008	0.028	0.027	0.014	-0.012	-0.008	-0.014	0.003	-0.012	-0.012	-0.006	0.002
λ^1_{60}	-0.011	-0.023	0.006	0.015	0.011	-0.006	-0.004	-0.007	-0.009	-0.012	0.015	0.001
Panel D. HYS V12												
λ^1_{5}	-0.005	-0.009	-0.014	-0.006	-0.017	-0.020	-0.021	-0.023	-0.018	-0.028	-0.018	-0.016
λ^1_{15}	-0.012	-0.011	-0.003	-0.009	-0.010	-0.013	-0.014	-0.012	-0.016	-0.015	-0.013	-0.013
λ^1_{30}	-0.017	-0.014	-0.005	-0.015	-0.013	-0.006	-0.010	-0.009	-0.015	-0.013	-0.014	-0.014
λ^1_{45}	-0.021	-0.007	-0.013	-0.010	-0.017	-0.009	-0.015	-0.009	-0.011	-0.015	-0.011	-0.010
λ^1_{60}	-0.019	-0.024	-0.011	-0.009	-0.007	-0.017	-0.015	-0.013	-0.012	-0.008	-0.002	-0.006
Panel E. MK V12												
λ^1_{5}	-0.005	-0.003	-0.007	0.005	-0.005	-0.006	0.000	0.001	0.007	-0.006	0.010	0.010
λ^1_{15}	-0.002	-0.005	-0.007	-0.008	-0.008	-0.005	-0.002	-0.005	-0.002	-0.001	0.000	0.001
λ^1_{30}	0.002	-0.004	-0.005	-0.015	-0.012	-0.016	-0.016	-0.017	-0.013	-0.011	-0.011	-0.012
λ^1_{45}	0.007	0.003	-0.005	-0.010	-0.015	-0.014	-0.023	-0.014	-0.017	-0.027	-0.022	-0.019
λ^1_{60}	0.010	0.003	0.004	-0.001	-0.005	-0.012	-0.019	-0.020	-0.022	-0.031	-0.026	-0.039
Panel F. FTRK V12												
λ^1_{5}	-0.002	-0.001	-0.007	0.005	-0.005	-0.007	-0.004	-0.001	0.006	-0.005	0.010	0.012
λ^1_{15}	0.000	-0.002	0.000	-0.004	-0.004	0.000	0.000	-0.005	-0.001	0.003	0.003	0.003
λ^1_{30}	-0.001	-0.003	-0.003	-0.007	-0.002	-0.006	-0.002	-0.007	-0.002	-0.004	-0.005	-0.004
λ^1_{45}	0.006	0.003	-0.005	-0.008	-0.010	-0.004	-0.011	-0.005	0.000	-0.011	-0.004	-0.006
λ^1_{60}	0.010	0.004	0.006	0.008	0.003	-0.005	-0.012	-0.013	-0.005	-0.011	0.003	-0.011

Table B2: Noise Model 1 (*i.i.d.*) - Covariance (V12) - RMSE.

	λ^2_5	λ^2_{10}	λ^2_{15}	λ^2_{20}	λ^2_{25}	λ^2_{30}	λ^2_{35}	λ^2_{40}	λ^2_{45}	λ^2_{50}	λ^2_{55}	λ^2_{60}
Panel A. OLS V12 (base scenario)												
λ^1_5	0.114	0.133	0.156	0.195	0.204	0.213	0.229	0.252	0.272	0.299	0.296	0.329
λ^1_{15}	0.156	0.151	0.156	0.158	0.161	0.179	0.189	0.209	0.200	0.222	0.234	0.237
λ^1_{30}	0.219	0.177	0.177	0.177	0.176	0.178	0.176	0.180	0.186	0.212	0.200	0.213
λ^1_{45}	0.259	0.220	0.200	0.220	0.179	0.203	0.186	0.184	0.183	0.186	0.194	0.204
λ^1_{60}	0.320	0.252	0.231	0.223	0.212	0.223	0.197	0.217	0.195	0.201	0.212	0.207
Panel B. OLS V12 (optimal Q and S)												
λ^1_5	0.108	0.127	0.151	0.188	0.202	0.212	0.227	0.250	0.270	0.298	0.293	0.333
λ^1_{15}	0.151	0.143	0.150	0.154	0.159	0.172	0.182	0.206	0.196	0.220	0.229	0.233
λ^1_{30}	0.216	0.174	0.173	0.172	0.170	0.170	0.167	0.176	0.181	0.208	0.197	0.206
λ^1_{45}	0.255	0.218	0.191	0.213	0.178	0.197	0.183	0.183	0.181	0.188	0.190	0.200
λ^1_{60}	0.317	0.251	0.222	0.215	0.206	0.224	0.194	0.202	0.184	0.202	0.208	0.199
Panel C. HY V12												
λ^1_5	1.107	0.900	0.795	0.651	0.627	0.585	0.533	0.516	0.504	0.459	0.485	0.451
λ^1_{15}	0.763	0.653	0.599	0.564	0.561	0.509	0.474	0.495	0.451	0.432	0.426	0.416
λ^1_{30}	0.571	0.537	0.500	0.485	0.457	0.452	0.435	0.424	0.407	0.397	0.387	0.385
λ^1_{45}	0.502	0.471	0.471	0.447	0.440	0.439	0.390	0.410	0.401	0.386	0.369	0.377
λ^1_{60}	0.462	0.435	0.423	0.416	0.387	0.385	0.390	0.392	0.360	0.368	0.389	0.375
Panel D. HYS V12												
λ^1_5	0.109	0.114	0.130	0.147	0.157	0.161	0.170	0.188	0.200	0.216	0.216	0.237
λ^1_{15}	0.127	0.124	0.127	0.141	0.141	0.144	0.150	0.165	0.158	0.179	0.185	0.186
λ^1_{30}	0.161	0.144	0.151	0.155	0.145	0.156	0.153	0.155	0.155	0.168	0.166	0.169
λ^1_{45}	0.185	0.172	0.159	0.179	0.158	0.190	0.157	0.161	0.165	0.158	0.168	0.182
λ^1_{60}	0.233	0.196	0.180	0.175	0.168	0.189	0.180	0.180	0.167	0.182	0.188	0.188
Panel E. MK V12												
λ^1_5	0.116	0.138	0.161	0.207	0.213	0.217	0.235	0.257	0.277	0.296	0.298	0.330
λ^1_{15}	0.163	0.160	0.150	0.163	0.170	0.182	0.203	0.212	0.203	0.225	0.236	0.240
λ^1_{30}	0.228	0.188	0.181	0.183	0.173	0.172	0.171	0.183	0.190	0.208	0.206	0.216
λ^1_{45}	0.264	0.227	0.203	0.223	0.181	0.203	0.177	0.188	0.187	0.185	0.192	0.195
λ^1_{60}	0.323	0.258	0.231	0.237	0.214	0.227	0.196	0.199	0.200	0.195	0.196	0.196
Panel F. FTRK V12												
λ^1_5	0.116	0.134	0.158	0.217	0.223	0.226	0.244	0.276	0.296	0.314	0.324	0.367
λ^1_{15}	0.159	0.170	0.166	0.180	0.190	0.199	0.229	0.233	0.230	0.263	0.270	0.279
λ^1_{30}	0.239	0.203	0.200	0.207	0.199	0.201	0.201	0.211	0.229	0.250	0.251	0.263
λ^1_{45}	0.284	0.247	0.224	0.246	0.207	0.236	0.207	0.228	0.232	0.222	0.237	0.237
λ^1_{60}	0.353	0.300	0.265	0.285	0.265	0.271	0.241	0.242	0.248	0.233	0.280	0.234

Table B3: Noise Model 1 (*i.i.d.*) - Variance of Process 1 (V1) - BIAS.

Panel A. OLS V1 (base scenario)

	λ^2_5	λ^2_{10}	λ^2_{15}	λ^2_{20}	λ^2_{25}	λ^2_{30}	λ^2_{35}	λ^2_{40}	λ^2_{45}	λ^2_{50}	λ^2_{55}	λ^2_{60}
λ^1_5	-0.007	-0.007	-0.007	-0.004	-0.001	-0.004	-0.008	-0.005	-0.005	-0.007	-0.006	-0.005
λ^1_{15}	-0.002	-0.009	-0.001	-0.002	0.006	0.005	-0.003	-0.003	-0.005	0.001	-0.004	-0.004
λ^1_{30}	-0.003	-0.003	-0.008	-0.015	0.002	-0.009	-0.011	0.000	-0.011	-0.006	-0.004	-0.005
λ^1_{45}	-0.005	-0.002	-0.003	0.000	-0.009	-0.014	-0.001	-0.002	-0.004	-0.009	-0.012	-0.011
λ^1_{60}	-0.007	-0.008	0.003	-0.008	-0.006	-0.009	-0.015	0.000	-0.011	-0.003	-0.004	-0.003

Panel B. OLS V1 (optimal Q and S)

	λ^2_5	λ^2_{10}	λ^2_{15}	λ^2_{20}	λ^2_{25}	λ^2_{30}	λ^2_{35}	λ^2_{40}	λ^2_{45}	λ^2_{50}	λ^2_{55}	λ^2_{60}
λ^1_5	-0.004	-0.005	-0.008	-0.003	-0.002	-0.005	-0.008	-0.004	-0.004	-0.006	-0.006	-0.006
λ^1_{15}	-0.001	-0.009	-0.002	-0.005	0.001	0.003	-0.006	-0.006	-0.008	0.001	-0.006	-0.003
λ^1_{30}	-0.006	-0.004	-0.006	-0.015	-0.001	-0.012	-0.013	0.000	-0.009	-0.006	-0.007	-0.005
λ^1_{45}	-0.005	-0.004	-0.006	-0.001	-0.010	-0.013	-0.002	-0.005	-0.004	-0.008	-0.011	-0.011
λ^1_{60}	-0.007	-0.007	0.005	-0.008	-0.005	-0.007	-0.015	-0.001	-0.010	-0.004	-0.004	0.000

Panel C. UK V1

	λ^2_5	λ^2_{10}	λ^2_{15}	λ^2_{20}	λ^2_{25}	λ^2_{30}	λ^2_{35}	λ^2_{40}	λ^2_{45}	λ^2_{50}	λ^2_{55}	λ^2_{60}
λ^1_5	0.099	0.095	0.096	0.103	0.104	0.104	0.097	0.100	0.104	0.095	0.100	0.101
λ^1_{15}	0.111	0.111	0.115	0.109	0.117	0.120	0.113	0.114	0.113	0.111	0.112	0.110
λ^1_{30}	0.129	0.125	0.126	0.120	0.130	0.123	0.124	0.122	0.122	0.120	0.123	0.122
λ^1_{45}	0.145	0.141	0.134	0.140	0.130	0.130	0.135	0.139	0.142	0.135	0.135	0.126
λ^1_{60}	0.152	0.147	0.145	0.156	0.147	0.150	0.142	0.145	0.150	0.142	0.150	0.151

Panel D. MK V1

	λ^2_5	λ^2_{10}	λ^2_{15}	λ^2_{20}	λ^2_{25}	λ^2_{30}	λ^2_{35}	λ^2_{40}	λ^2_{45}	λ^2_{50}	λ^2_{55}	λ^2_{60}
λ^1_5	0.150	0.103	0.076	0.071	0.050	0.048	0.053	0.033	0.051	0.029	0.044	0.049
λ^1_{15}	0.058	0.079	0.208	0.190	0.148	0.140	0.121	0.100	0.105	0.085	0.083	0.085
λ^1_{30}	0.049	0.062	0.076	0.088	0.105	0.264	0.265	0.221	0.197	0.163	0.163	0.145
λ^1_{45}	0.050	0.059	0.067	0.075	0.086	0.100	0.115	0.121	0.272	0.248	0.262	0.239
λ^1_{60}	0.042	0.046	0.068	0.078	0.089	0.090	0.094	0.110	0.123	0.173	0.142	0.316

Panel E. FTRK V1

	λ^2_5	λ^2_{10}	λ^2_{15}	λ^2_{20}	λ^2_{25}	λ^2_{30}	λ^2_{35}	λ^2_{40}	λ^2_{45}	λ^2_{50}	λ^2_{55}	λ^2_{60}
λ^1_5	0.017	0.020	0.018	0.024	0.013	0.012	0.022	0.003	0.026	0.006	0.024	0.034
λ^1_{15}	0.019	0.019	0.027	0.033	0.024	0.027	0.019	0.004	0.015	0.009	0.016	0.023
λ^1_{30}	0.020	0.015	0.015	0.017	0.023	0.059	0.039	0.034	0.023	0.013	0.010	0.005
λ^1_{45}	0.029	0.018	0.014	0.009	0.014	0.012	0.017	0.015	0.035	0.025	0.037	0.026
λ^1_{60}	0.027	0.017	0.020	0.029	0.025	0.017	0.004	0.011	0.018	0.015	0.021	0.036

Table B4: Noise Model 1 (*i.i.d.*) - Variance of Process 1 (V1) - RMSE.

	λ^2_5	λ^2_{10}	λ^2_{15}	λ^2_{20}	λ^2_{25}	λ^2_{30}	λ^2_{35}	λ^2_{40}	λ^2_{45}	λ^2_{50}	λ^2_{55}	λ^2_{60}
Panel A. OLS V1 (base scenario)												
λ^1_5	0.192	0.196	0.186	0.200	0.192	0.180	0.182	0.189	0.196	0.193	0.173	0.195
λ^1_{15}	0.232	0.233	0.249	1.117	0.250	0.470	0.243	0.279	1.983	0.264	0.224	0.224
λ^1_{30}	0.261	0.247	0.262	0.260	0.250	0.478	0.247	0.363	0.266	0.259	0.257	1.476
λ^1_{45}	0.287	0.309	0.284	0.304	0.272	0.299	0.273	0.294	0.268	0.291	0.272	0.320
λ^1_{60}	0.338	0.318	0.327	0.292	0.339	0.351	0.321	0.313	0.344	0.343	0.361	0.316
Panel B. OLS V1 (optimal Q and S)												
λ^1_5	0.171	0.173	0.162	0.173	0.167	0.162	0.159	0.162	0.171	0.167	0.152	0.172
λ^1_{15}	0.208	0.190	0.223	0.225	0.213	0.231	0.205	0.212	0.217	0.211	0.199	0.192
λ^1_{30}	0.232	0.231	0.242	0.244	0.231	0.235	0.220	0.252	0.237	0.249	0.245	0.238
λ^1_{45}	0.247	0.290	0.263	0.279	0.249	0.269	0.250	0.276	0.246	0.252	0.249	0.278
λ^1_{60}	0.290	0.294	0.313	0.292	0.294	0.308	0.295	0.282	0.314	0.313	0.315	0.286
Panel C. UK V1												
λ^1_5	0.238	0.235	0.230	0.238	0.236	0.241	0.229	0.234	0.244	0.244	0.233	0.247
λ^1_{15}	0.294	0.288	0.295	0.293	0.289	0.309	0.283	0.287	0.291	0.284	0.291	0.285
λ^1_{30}	0.356	0.335	0.353	0.346	0.335	0.350	0.338	0.343	0.333	0.325	0.330	0.346
λ^1_{45}	0.390	0.395	0.361	0.395	0.354	0.389	0.363	0.385	0.366	0.381	0.354	0.380
λ^1_{60}	0.406	0.389	0.406	0.415	0.403	0.440	0.382	0.401	0.402	0.428	0.431	0.394
Panel D. MK V1												
λ^1_5	0.258	0.263	0.296	0.347	0.357	0.385	0.403	0.432	0.493	0.465	0.493	0.559
λ^1_{15}	0.332	0.268	0.349	0.350	0.345	0.355	0.372	0.370	0.374	0.399	0.413	0.437
λ^1_{30}	0.455	0.357	0.343	0.328	0.311	0.419	0.418	0.418	0.408	0.403	0.437	0.412
λ^1_{45}	0.531	0.436	0.401	0.417	0.354	0.373	0.342	0.361	0.460	0.452	0.468	0.450
λ^1_{60}	0.611	0.508	0.472	0.442	0.426	0.481	0.367	0.395	0.379	0.398	0.392	0.488
Panel E. FTRK V1												
λ^1_5	0.206	0.229	0.265	0.326	0.357	0.378	0.422	0.454	0.531	0.498	0.539	0.617
λ^1_{15}	0.316	0.251	0.288	0.295	0.319	0.331	0.377	0.374	0.396	0.458	0.479	0.512
λ^1_{30}	0.470	0.373	0.357	0.346	0.319	0.353	0.347	0.384	0.403	0.440	0.474	0.467
λ^1_{45}	0.560	0.469	0.444	0.475	0.391	0.412	0.372	0.403	0.424	0.429	0.443	0.439
λ^1_{60}	0.653	0.575	0.528	0.520	0.513	0.587	0.428	0.456	0.434	0.432	0.455	0.426

Table B5: Noise Model 1 (*i.i.d.*) - Variance of Process 2 (V2) - BIAS.

	λ^2_5	λ^2_{10}	λ^2_{15}	λ^2_{20}	λ^2_{25}	λ^2_{30}	λ^2_{35}	λ^2_{40}	λ^2_{45}	λ^2_{50}	λ^2_{55}	λ^2_{60}
Panel A. OLS V2 (base scenario)												
λ^1_5	-0.014	-0.013	-0.020	-0.012	-0.014	-0.025	-0.008	-0.017	-0.013	-0.044	-0.014	-0.021
λ^1_{15}	-0.009	-0.007	-0.011	-0.015	-0.006	-0.011	-0.008	-0.014	-0.012	-0.012	-0.016	-0.007
λ^1_{30}	-0.018	-0.009	-0.015	-0.008	-0.011	-0.013	-0.002	-0.012	-0.024	-0.016	-0.012	-0.010
λ^1_{45}	-0.011	-0.014	-0.010	-0.006	-0.020	-0.009	-0.022	-0.028	-0.016	-0.028	-0.011	-0.013
λ^1_{60}	-0.015	-0.010	-0.010	-0.010	-0.011	-0.007	-0.018	-0.010	-0.016	-0.019	0.000	-0.022
Panel B. OLS V2 (optimal Q and S												
λ^1_5	-0.013	-0.014	-0.018	-0.015	-0.017	-0.027	-0.010	-0.017	-0.012	-0.037	-0.013	-0.017
λ^1_{15}	-0.010	-0.011	-0.014	-0.014	-0.007	-0.014	-0.011	-0.016	-0.015	-0.015	-0.017	-0.010
λ^1_{30}	-0.016	-0.011	-0.018	-0.014	-0.012	-0.012	-0.004	-0.011	-0.022	-0.019	-0.017	-0.010
λ^1_{45}	-0.011	-0.013	-0.011	-0.008	-0.018	-0.012	-0.022	-0.028	-0.014	-0.028	-0.012	-0.014
λ^1_{60}	-0.013	-0.012	-0.011	-0.009	-0.015	-0.010	-0.021	-0.011	-0.016	-0.020	-0.002	-0.022
Panel C. UK V2												
λ^1_5	0.080	0.088	0.091	0.102	0.099	0.097	0.110	0.102	0.113	0.097	0.119	0.121
λ^1_{15}	0.085	0.089	0.097	0.099	0.104	0.110	0.109	0.118	0.120	0.123	0.120	0.126
λ^1_{30}	0.078	0.089	0.096	0.099	0.105	0.109	0.121	0.119	0.119	0.119	0.130	0.128
λ^1_{45}	0.084	0.088	0.095	0.100	0.099	0.099	0.111	0.101	0.127	0.108	0.123	0.137
λ^1_{60}	0.079	0.091	0.094	0.099	0.107	0.122	0.110	0.113	0.124	0.122	0.139	0.119
Panel D. MK V2												
λ^1_5	0.097	0.054	0.039	0.040	0.026	0.026	0.025	0.024	0.022	0.001	0.021	0.023
λ^1_{15}	0.067	0.116	0.100	0.076	0.067	0.062	0.062	0.058	0.054	0.048	0.043	0.043
λ^1_{30}	0.035	0.073	0.113	0.144	0.174	0.113	0.102	0.087	0.078	0.073	0.076	0.069
λ^1_{45}	0.032	0.065	0.081	0.096	0.126	0.171	0.206	0.180	0.110	0.090	0.115	0.093
λ^1_{60}	0.025	0.041	0.070	0.081	0.105	0.126	0.140	0.149	0.198	0.213	0.260	0.132
Panel E. FTRK V2												
λ^1_5	0.011	0.013	0.004	0.013	0.001	0.003	0.000	0.006	0.003	-0.015	0.005	0.011
λ^1_{15}	0.014	0.009	0.017	0.011	0.011	0.007	0.012	0.011	0.009	0.007	0.006	0.004
λ^1_{30}	0.002	0.011	0.009	0.006	0.015	0.004	0.017	0.009	0.003	0.005	0.007	-0.001
λ^1_{45}	0.009	0.015	0.000	-0.001	-0.001	0.007	0.029	0.015	0.015	-0.003	0.014	0.003
λ^1_{60}	0.006	0.006	0.012	0.011	0.003	0.000	-0.002	-0.005	0.010	0.009	0.043	-0.004

Table B6: Noise Model 1 (*i.i.d.*) - Variance of Process 2 (V2) - RMSE.

	λ^2_5	λ^2_{10}	λ^2_{15}	λ^2_{20}	λ^2_{25}	λ^2_{30}	λ^2_{35}	λ^2_{40}	λ^2_{45}	λ^2_{50}	λ^2_{55}	λ^2_{60}
Panel A. OLS V2 (base scenario)												
λ^1_5	0.200	0.228	0.239	0.299	0.297	0.314	0.330	0.332	0.334	0.391	0.342	0.354
λ^1_{15}	0.195	0.217	0.447	0.313	0.296	0.421	0.331	0.346	0.323	0.352	0.358	0.377
λ^1_{30}	0.196	0.238	0.257	0.289	0.286	0.312	0.311	0.343	0.315	0.366	0.354	0.342
λ^1_{45}	0.205	0.242	0.263	0.279	0.294	0.273	0.296	0.291	0.343	0.387	0.341	0.375
λ^1_{60}	0.202	0.232	0.271	0.272	0.344	0.295	0.341	0.327	0.327	0.358	0.376	0.356
Panel B. OLS V2 (optimal Q and S)												
λ^1_5	0.173	0.195	0.216	0.251	0.265	0.282	0.297	0.301	0.308	0.347	0.325	0.331
λ^1_{15}	0.172	0.186	0.247	0.262	0.250	0.289	0.263	0.309	0.298	0.326	0.333	0.341
λ^1_{30}	0.172	0.206	0.234	0.251	0.262	0.282	0.285	0.306	0.285	0.346	0.320	0.320
λ^1_{45}	0.178	0.208	0.235	0.235	0.273	0.254	0.278	0.265	0.332	0.343	0.301	0.350
λ^1_{60}	0.175	0.208	0.229	0.236	0.287	0.267	0.319	0.301	0.300	0.333	0.342	0.356
Panel C. UK V2												
λ^1_5	0.267	0.298	0.315	0.365	0.371	0.378	0.391	0.383	0.414	0.421	0.427	0.434
λ^1_{15}	0.256	0.299	0.348	0.361	0.374	0.380	0.393	0.409	0.418	0.419	0.425	0.413
λ^1_{30}	0.249	0.313	0.333	0.355	0.370	0.400	0.395	0.401	0.413	0.413	0.422	0.420
λ^1_{45}	0.273	0.309	0.321	0.346	0.381	0.365	0.386	0.383	0.428	0.423	0.416	0.438
λ^1_{60}	0.255	0.305	0.322	0.360	0.378	0.390	0.415	0.413	0.411	0.425	0.438	0.459
Panel D. MK V2												
λ^1_5	0.263	0.309	0.343	0.408	0.448	0.464	0.496	0.539	0.586	0.592	0.620	0.643
λ^1_{15}	0.344	0.357	0.339	0.358	0.374	0.388	0.415	0.419	0.435	0.485	0.481	0.503
λ^1_{30}	0.423	0.399	0.400	0.393	0.408	0.385	0.382	0.384	0.396	0.428	0.426	0.436
λ^1_{45}	0.477	0.439	0.419	0.444	0.409	0.436	0.436	0.436	0.390	0.408	0.396	0.409
λ^1_{60}	0.573	0.489	0.445	0.463	0.442	0.465	0.452	0.433	0.485	0.471	0.525	0.429
Panel E. FTRK V2												
λ^1_5	0.229	0.289	0.333	0.415	0.460	0.476	0.514	0.570	0.620	0.621	0.662	0.698
λ^1_{15}	0.319	0.343	0.329	0.359	0.394	0.408	0.447	0.450	0.474	0.545	0.532	0.572
λ^1_{30}	0.436	0.411	0.396	0.384	0.392	0.400	0.407	0.410	0.441	0.476	0.497	0.516
λ^1_{45}	0.509	0.459	0.442	0.461	0.420	0.448	0.421	0.447	0.427	0.432	0.452	0.462
λ^1_{60}	0.625	0.561	0.505	0.521	0.504	0.542	0.507	0.478	0.503	0.472	0.538	0.496

Table B7: Noise Model 2 (AR(1)) - Covariance (V12) - BIAS.

	λ^2_5	λ^2_{10}	λ^2_{15}	λ^2_{20}	λ^2_{25}	λ^2_{30}	λ^2_{35}	λ^2_{40}	λ^2_{45}	λ^2_{50}	λ^2_{55}	λ^2_{60}
Panel A. OLS V12 (base scenario)												
λ^1_5	-0.009	-0.012	-0.014	-0.013	-0.016	-0.019	-0.020	-0.024	-0.030	-0.022	-0.022	-0.027
λ^1_{15}	-0.015	-0.014	-0.009	-0.016	-0.020	-0.013	-0.019	-0.015	-0.018	-0.011	-0.020	-0.018
λ^1_{30}	-0.027	-0.013	-0.020	-0.015	-0.008	-0.015	-0.010	-0.017	-0.020	-0.013	-0.013	-0.032
λ^1_{45}	-0.024	-0.024	-0.017	-0.008	-0.022	-0.018	-0.010	-0.011	-0.012	-0.020	-0.028	-0.009
λ^1_{60}	-0.022	-0.033	-0.017	-0.019	-0.025	-0.019	-0.018	-0.006	-0.024	-0.020	-0.019	-0.012
Panel B. OLS V12 (optimal Q and S)												
λ^1_5	-0.008	-0.012	-0.014	-0.013	-0.016	-0.020	-0.021	-0.025	-0.030	-0.022	-0.022	-0.027
λ^1_{15}	-0.015	-0.014	-0.009	-0.016	-0.020	-0.013	-0.019	-0.016	-0.018	-0.011	-0.020	-0.019
λ^1_{30}	-0.027	-0.013	-0.019	-0.016	-0.008	-0.013	-0.010	-0.017	-0.020	-0.011	-0.013	-0.032
λ^1_{45}	-0.024	-0.024	-0.017	-0.009	-0.022	-0.018	-0.011	-0.010	-0.012	-0.019	-0.029	-0.009
λ^1_{60}	-0.022	-0.033	-0.017	-0.019	-0.025	-0.018	-0.018	-0.006	-0.025	-0.021	-0.022	-0.012
Panel C. HY V12												
λ^1_5	-0.053	0.015	-0.025	-0.056	-0.010	-0.003	0.014	-0.030	-0.005	-0.010	0.041	-0.014
λ^1_{15}	-0.041	-0.057	-0.021	-0.037	0.006	0.043	0.016	-0.030	-0.022	-0.022	0.023	-0.019
λ^1_{30}	0.012	-0.014	-0.012	-0.019	-0.032	-0.017	0.016	-0.023	-0.007	0.019	0.002	-0.003
λ^1_{45}	-0.020	-0.011	-0.006	0.003	-0.016	-0.007	-0.017	0.030	0.029	0.015	-0.020	-0.010
λ^1_{60}	-0.019	-0.016	0.001	-0.023	-0.018	0.004	-0.014	0.011	-0.005	-0.010	0.001	0.003
Panel D. HYS V12												
λ^1_5	-0.010	-0.007	-0.009	-0.014	-0.013	-0.016	-0.015	-0.020	-0.025	-0.020	-0.018	-0.023
λ^1_{15}	-0.013	-0.014	-0.008	-0.017	-0.013	-0.005	-0.012	-0.015	-0.016	-0.011	-0.014	-0.016
λ^1_{30}	-0.022	-0.010	-0.013	-0.013	-0.010	-0.010	-0.007	-0.017	-0.017	-0.007	-0.007	-0.025
λ^1_{45}	-0.021	-0.020	-0.013	-0.009	-0.020	-0.015	-0.011	-0.003	-0.004	-0.013	-0.026	-0.007
λ^1_{60}	-0.023	-0.029	-0.013	-0.018	-0.024	-0.014	-0.017	-0.003	-0.020	-0.018	-0.016	-0.007
Panel E. MK V12												
λ^1_5	-0.005	-0.006	-0.004	-0.001	0.001	-0.001	-0.001	0.002	-0.002	0.007	0.003	0.007
λ^1_{15}	-0.005	-0.006	-0.007	-0.008	-0.010	-0.005	-0.002	-0.005	-0.004	-0.003	-0.002	0.001
λ^1_{30}	-0.003	-0.003	-0.010	-0.014	-0.008	-0.015	-0.013	-0.021	-0.018	-0.011	-0.006	-0.023
λ^1_{45}	0.007	-0.006	-0.001	-0.006	-0.011	-0.012	-0.014	-0.019	-0.020	-0.021	-0.034	-0.017
λ^1_{60}	0.011	-0.008	0.002	-0.001	-0.005	-0.013	-0.015	-0.020	-0.024	-0.028	-0.040	-0.030
Panel F. FTRK V12												
λ^1_5	-0.003	-0.007	-0.003	-0.001	0.000	-0.002	-0.004	-0.002	-0.004	0.005	0.004	0.006
λ^1_{15}	-0.004	-0.005	-0.001	-0.005	-0.006	-0.004	-0.001	-0.004	-0.003	-0.001	0.002	0.003
λ^1_{30}	-0.007	-0.005	-0.008	-0.011	0.001	-0.007	-0.002	-0.008	-0.009	-0.008	0.000	-0.017
λ^1_{45}	0.004	-0.006	0.001	-0.003	-0.005	-0.005	-0.003	-0.006	-0.007	-0.005	-0.017	-0.005
λ^1_{60}	0.013	-0.006	0.003	0.003	0.001	-0.003	-0.006	-0.008	-0.004	-0.011	-0.014	-0.005

Table B8: Noise Model 2 (AR(1)) - Covariance (V12) - RMSE.

	λ^2_5	λ^2_{10}	λ^2_{15}	λ^2_{20}	λ^2_{25}	λ^2_{30}	λ^2_{35}	λ^2_{40}	λ^2_{45}	λ^2_{50}	λ^2_{55}	λ^2_{60}
Panel A. OLS V12 (base scenario)												
λ^1_5	0.115	0.136	0.164	0.191	0.217	0.237	0.248	0.253	0.277	0.311	0.301	0.320
λ^1_{15}	0.161	0.148	0.149	0.152	0.167	0.184	0.200	0.215	0.228	0.235	0.238	0.248
λ^1_{30}	0.206	0.188	0.188	0.165	0.190	0.175	0.179	0.182	0.188	0.211	0.216	0.207
λ^1_{45}	0.262	0.220	0.202	0.208	0.189	0.189	0.192	0.184	0.190	0.198	0.221	0.208
λ^1_{60}	0.327	0.260	0.259	0.215	0.243	0.202	0.196	0.256	0.200	0.188	0.218	0.194
Panel B. OLS V12 (optimal Q and S)												
λ^1_5	0.110	0.131	0.158	0.187	0.212	0.234	0.246	0.252	0.281	0.315	0.295	0.319
λ^1_{15}	0.156	0.139	0.144	0.148	0.164	0.182	0.198	0.211	0.224	0.234	0.237	0.245
λ^1_{30}	0.205	0.185	0.182	0.160	0.183	0.172	0.177	0.177	0.189	0.201	0.210	0.206
λ^1_{45}	0.259	0.217	0.197	0.207	0.185	0.185	0.187	0.181	0.183	0.192	0.209	0.203
λ^1_{60}	0.328	0.258	0.253	0.211	0.229	0.197	0.191	0.243	0.188	0.185	0.203	0.191
Panel C. HY V12												
λ^1_5	1.296	1.043	0.876	0.793	0.725	0.661	0.641	0.615	0.590	0.535	0.551	0.497
λ^1_{15}	0.936	0.824	0.736	0.660	0.628	0.598	0.568	0.522	0.536	0.520	0.479	0.459
λ^1_{30}	0.684	0.619	0.570	0.565	0.545	0.516	0.497	0.470	0.467	0.475	0.459	0.442
λ^1_{45}	0.577	0.533	0.550	0.496	0.487	0.494	0.465	0.424	0.459	0.441	0.432	0.427
λ^1_{60}	0.492	0.497	0.477	0.476	0.447	0.476	0.453	0.440	0.413	0.426	0.413	0.406
Panel D. HYS V12												
λ^1_5	0.118	0.116	0.130	0.148	0.165	0.176	0.187	0.189	0.208	0.227	0.216	0.237
λ^1_{15}	0.129	0.127	0.139	0.138	0.141	0.154	0.159	0.167	0.175	0.185	0.182	0.195
λ^1_{30}	0.161	0.151	0.149	0.147	0.164	0.152	0.162	0.162	0.168	0.166	0.190	0.184
λ^1_{45}	0.195	0.165	0.168	0.165	0.156	0.176	0.167	0.158	0.171	0.181	0.186	0.182
λ^1_{60}	0.238	0.202	0.202	0.177	0.192	0.174	0.171	0.212	0.180	0.174	0.183	0.186
Panel E. MK V12												
λ^1_5	0.116	0.143	0.174	0.192	0.222	0.236	0.251	0.247	0.273	0.307	0.300	0.321
λ^1_{15}	0.167	0.153	0.151	0.151	0.178	0.194	0.209	0.219	0.235	0.240	0.239	0.251
λ^1_{30}	0.218	0.199	0.195	0.169	0.181	0.168	0.176	0.184	0.190	0.201	0.207	0.208
λ^1_{45}	0.271	0.225	0.214	0.221	0.196	0.193	0.193	0.170	0.182	0.197	0.192	0.196
λ^1_{60}	0.336	0.273	0.271	0.227	0.235	0.208	0.201	0.222	0.200	0.192	0.199	0.197
Panel F. FTRK V12												
λ^1_5	0.118	0.136	0.174	0.191	0.226	0.241	0.257	0.249	0.283	0.319	0.320	0.345
λ^1_{15}	0.163	0.161	0.162	0.163	0.193	0.217	0.234	0.247	0.273	0.273	0.279	0.290
λ^1_{30}	0.219	0.214	0.215	0.186	0.205	0.186	0.210	0.215	0.221	0.237	0.248	0.243
λ^1_{45}	0.281	0.244	0.244	0.245	0.226	0.227	0.229	0.207	0.221	0.235	0.238	0.245
λ^1_{60}	0.370	0.311	0.307	0.267	0.269	0.249	0.246	0.254	0.250	0.253	0.239	0.251

Table B9: Noise Model 2 (AR(1)) - Variance of Process 1 (V1) - BIAS.

	λ^2_5	λ^2_{10}	λ^2_{15}	λ^2_{20}	λ^2_{25}	λ^2_{30}	λ^2_{35}	λ^2_{40}	λ^2_{45}	λ^2_{50}	λ^2_{55}	λ^2_{60}
Panel A. OLS V1 (base scenario)												
λ^1_5	-0.001	-0.006	-0.004	-0.001	-0.005	-0.002	-0.001	-0.008	-0.001	0.001	-0.005	-0.003
λ^1_{15}	-0.057	-0.006	0.088	-0.008	0.002	0.052	0.018	0.065	-0.006	-0.005	-0.007	-0.047
λ^1_{30}	-0.005	-0.003	-0.001	-0.011	-0.005	-0.004	-0.004	-0.008	-0.012	-0.005	0.005	0.023
λ^1_{45}	-0.003	-0.004	-0.009	0.001	-0.024	-0.004	-0.008	-0.017	-0.012	-0.013	-0.012	-0.007
λ^1_{60}	-0.023	-0.025	-0.012	-0.011	-0.009	-0.007	-0.017	-0.014	0.006	-0.014	-0.013	-0.016
Panel B. OLS V1 (optimal Q and S)												
λ^1_5	-0.089	-0.104	-0.096	-0.091	-0.092	-0.095	-0.091	-0.100	-0.101	-0.094	-0.095	-0.097
λ^1_{15}	-0.032	-0.030	-0.017	-0.034	-0.022	-0.023	-0.029	-0.031	-0.024	-0.026	-0.023	-0.023
λ^1_{30}	-0.017	-0.011	-0.019	-0.022	-0.008	-0.014	-0.013	-0.025	-0.022	-0.015	-0.007	-0.006
λ^1_{45}	-0.007	-0.009	-0.012	-0.005	-0.015	-0.014	-0.015	-0.004	-0.019	-0.021	-0.017	-0.015
λ^1_{60}	-0.023	-0.033	-0.012	-0.013	-0.009	-0.012	-0.020	-0.017	0.001	-0.008	-0.014	-0.017
Panel C. UK V1												
λ^1_5	0.129	0.124	0.125	0.129	0.123	0.126	0.129	0.121	0.126	0.127	0.124	0.126
λ^1_{15}	0.138	0.135	0.149	0.133	0.144	0.141	0.134	0.135	0.144	0.136	0.137	0.134
λ^1_{30}	0.150	0.158	0.154	0.158	0.155	0.153	0.152	0.156	0.150	0.154	0.161	0.168
λ^1_{45}	0.162	0.176	0.169	0.182	0.164	0.174	0.170	0.173	0.160	0.168	0.167	0.159
λ^1_{60}	0.186	0.172	0.189	0.188	0.197	0.186	0.181	0.175	0.193	0.178	0.186	0.182
Panel D. MK V1												
λ^1_5	0.127	0.129	0.100	0.080	0.072	0.068	0.060	0.065	0.045	0.054	0.058	0.057
λ^1_{15}	0.071	0.101	0.176	0.222	0.214	0.170	0.138	0.128	0.120	0.110	0.096	0.100
λ^1_{30}	0.058	0.079	0.098	0.116	0.146	0.142	0.305	0.295	0.243	0.214	0.237	0.156
λ^1_{45}	0.063	0.077	0.092	0.106	0.117	0.135	0.181	0.301	0.272	0.328	0.332	0.296
λ^1_{60}	0.059	0.054	0.080	0.091	0.106	0.125	0.132	0.140	0.159	0.161	0.220	0.193
Panel E. FTRK V1												
λ^1_5	0.029	0.024	0.032	0.021	0.022	0.027	0.022	0.028	0.016	0.029	0.031	0.033
λ^1_{15}	0.023	0.023	0.035	0.018	0.024	0.026	0.026	0.022	0.023	0.019	0.026	0.017
λ^1_{30}	0.020	0.021	0.023	0.019	0.028	0.020	0.047	0.041	0.024	0.022	0.025	-0.006
λ^1_{45}	0.034	0.028	0.027	0.026	0.020	0.026	0.027	0.051	0.019	0.029	0.041	0.047
λ^1_{60}	0.045	0.020	0.027	0.025	0.026	0.022	0.017	0.013	0.016	0.013	0.034	0.023

Table B10: Noise Model 2 (AR(1)) - Variance of Process 1 (V1) - RMSE.

	λ^2_5	λ^2_{10}	λ^2_{15}	λ^2_{20}	λ^2_{25}	λ^2_{30}	λ^2_{35}	λ^2_{40}	λ^2_{45}	λ^2_{50}	λ^2_{55}	λ^2_{60}
Panel A. OLS V1 (base scenario)												
λ^1_5	0.195	0.189	0.216	0.205	0.185	0.198	0.202	0.183	0.214	0.217	0.189	0.187
λ^1_{15}	0.272	0.235	0.451	0.246	0.221	0.533	0.276	0.286	0.294	0.266	0.223	0.290
λ^1_{30}	0.272	0.262	0.273	0.245	0.273	0.258	0.251	0.281	0.272	0.286	0.281	0.270
λ^1_{45}	0.278	0.308	0.293	0.306	0.301	0.311	0.287	0.287	0.292	0.281	0.309	0.317
λ^1_{60}	0.326	0.328	0.355	0.328	0.297	0.333	0.339	0.323	0.366	0.305	0.322	0.320
Panel B. OLS V1 (optimal Q and S)												
λ^1_5	0.196	0.198	0.212	0.205	0.189	0.194	0.197	0.197	0.204	0.212	0.195	0.190
λ^1_{15}	0.195	0.222	0.201	0.217	0.213	0.209	0.211	0.217	0.231	0.218	0.206	0.212
λ^1_{30}	0.255	0.240	0.253	0.236	0.253	0.240	0.242	0.263	0.256	0.265	0.263	0.250
λ^1_{45}	0.265	0.268	0.270	0.281	0.275	0.290	0.271	0.258	0.263	0.266	0.270	0.291
λ^1_{60}	0.288	0.300	0.319	0.318	0.297	0.301	0.297	0.296	0.334	0.273	0.297	0.292
Panel C. UK V1												
λ^1_5	0.264	0.263	0.260	0.272	0.253	0.264	0.271	0.252	0.265	0.264	0.256	0.253
λ^1_{15}	0.305	0.317	0.309	0.306	0.317	0.319	0.302	0.320	0.316	0.304	0.306	0.313
λ^1_{30}	0.356	0.351	0.372	0.347	0.373	0.365	0.353	0.361	0.361	0.382	0.382	0.394
λ^1_{45}	0.383	0.412	0.396	0.415	0.394	0.411	0.401	0.374	0.378	0.390	0.401	0.375
λ^1_{60}	0.444	0.421	0.447	0.432	0.440	0.444	0.418	0.419	0.470	0.403	0.419	0.437
Panel D. MK V1												
λ^1_5	0.243	0.283	0.310	0.346	0.377	0.414	0.427	0.425	0.450	0.508	0.520	0.528
λ^1_{15}	0.309	0.287	0.314	0.373	0.382	0.380	0.405	0.414	0.430	0.445	0.471	0.422
λ^1_{30}	0.453	0.376	0.353	0.314	0.355	0.338	0.464	0.482	0.449	0.430	0.457	0.419
λ^1_{45}	0.543	0.453	0.422	0.423	0.376	0.386	0.382	0.456	0.437	0.503	0.505	0.485
λ^1_{60}	0.688	0.546	0.494	0.432	0.438	0.425	0.375	0.387	0.416	0.371	0.418	0.402
Panel E. FTRK V1												
λ^1_5	0.211	0.235	0.271	0.311	0.362	0.418	0.430	0.425	0.477	0.538	0.554	0.569
λ^1_{15}	0.280	0.267	0.261	0.307	0.315	0.353	0.406	0.431	0.477	0.481	0.547	0.471
λ^1_{30}	0.455	0.385	0.360	0.300	0.344	0.334	0.376	0.417	0.420	0.415	0.437	0.457
λ^1_{45}	0.552	0.489	0.465	0.463	0.410	0.408	0.371	0.369	0.383	0.432	0.446	0.468
λ^1_{60}	0.742	0.611	0.564	0.486	0.506	0.494	0.415	0.425	0.446	0.410	0.430	0.439

Table B11: Noise Model 2 (AR(1)) - Variance of Process 2 (V2) - BIAS.

	λ^2_5	λ^2_{10}	λ^2_{15}	λ^2_{20}	λ^2_{25}	λ^2_{30}	λ^2_{35}	λ^2_{40}	λ^2_{45}	λ^2_{50}	λ^2_{55}	λ^2_{60}
Panel A. OLS V2 (base scenario)												
λ^1_5	-0.015	-0.014	-0.056	-0.012	-0.007	-0.017	-0.015	0.028	-0.020	-0.014	-0.025	-0.012
λ^1_{15}	-0.014	-0.011	0.035	-0.015	-0.005	-0.094	-0.021	-0.037	-0.016	-0.029	-0.011	-0.018
λ^1_{30}	-0.012	-0.018	-0.005	-0.025	-0.011	-0.016	-0.015	0.004	-0.019	-0.003	-0.002	-0.034
λ^1_{45}	-0.013	-0.014	0.030	-0.097	-0.017	-0.008	-0.007	-0.013	-0.007	-0.015	-0.026	-0.014
λ^1_{60}	-0.017	-0.020	-0.087	-0.014	-0.011	-0.017	-0.008	-0.018	0.002	-0.014	-0.008	-0.013
Panel B. OLS V2 (optimal Q and S)												
λ^1_5	-0.049	-0.028	-0.019	-0.018	-0.015	-0.021	-0.020	-0.015	-0.029	-0.024	-0.029	-0.018
λ^1_{15}	-0.050	-0.027	-0.019	-0.025	-0.018	-0.019	-0.024	-0.020	-0.019	-0.029	-0.016	-0.020
λ^1_{30}	-0.047	-0.031	-0.018	-0.020	-0.016	-0.022	-0.020	-0.019	-0.020	-0.008	-0.005	-0.032
λ^1_{45}	-0.050	-0.030	-0.024	-0.017	-0.022	-0.020	-0.017	-0.017	-0.011	-0.018	-0.026	-0.018
λ^1_{60}	-0.053	-0.034	-0.022	-0.016	-0.019	-0.022	-0.011	-0.018	-0.026	-0.015	-0.012	-0.016
Panel C. UK V2												
λ^1_5	0.083	0.092	0.098	0.101	0.109	0.108	0.107	0.118	0.115	0.122	0.117	0.127
λ^1_{15}	0.085	0.093	0.103	0.098	0.107	0.104	0.104	0.117	0.124	0.120	0.128	0.131
λ^1_{30}	0.086	0.088	0.105	0.099	0.102	0.103	0.114	0.113	0.123	0.127	0.138	0.116
λ^1_{45}	0.083	0.089	0.098	0.105	0.103	0.100	0.118	0.114	0.126	0.132	0.118	0.135
λ^1_{60}	0.079	0.089	0.095	0.104	0.115	0.110	0.113	0.112	0.112	0.124	0.130	0.132
Panel D. MK V2												
λ^1_5	0.135	0.050	0.045	0.040	0.038	0.021	0.019	0.021	0.014	0.019	0.014	0.022
λ^1_{15}	0.057	0.134	0.166	0.069	0.066	0.057	0.044	0.046	0.044	0.042	0.044	0.041
λ^1_{30}	0.031	0.063	0.103	0.158	0.177	0.215	0.089	0.086	0.082	0.078	0.087	0.056
λ^1_{45}	0.025	0.049	0.086	0.098	0.140	0.157	0.199	0.138	0.136	0.106	0.089	0.097
λ^1_{60}	0.027	0.020	0.060	0.090	0.092	0.138	0.154	0.195	0.215	0.223	0.243	0.235
Panel E. FTRK V2												
λ^1_5	0.012	0.009	0.015	0.010	0.013	-0.002	-0.001	-0.001	-0.004	0.001	0.000	0.007
λ^1_{15}	0.005	0.016	0.023	0.009	0.009	0.007	-0.001	0.002	0.003	0.004	0.012	0.003
λ^1_{30}	-0.005	-0.004	0.002	0.013	0.020	0.020	0.011	0.001	0.009	0.003	0.013	-0.004
λ^1_{45}	0.001	0.000	0.008	0.007	0.009	-0.003	0.024	0.007	0.013	0.014	-0.008	0.009
λ^1_{60}	0.010	-0.018	0.001	0.011	0.002	0.007	0.004	0.022	0.015	0.010	0.033	0.010

Table B12: Noise Model 2 (AR(1)) - Variance of Process 2 (V2) - RMSE.

	λ^2_5	λ^2_{10}	λ^2_{15}	λ^2_{20}	λ^2_{25}	λ^2_{30}	λ^2_{35}	λ^2_{40}	λ^2_{45}	λ^2_{50}	λ^2_{55}	λ^2_{60}
Panel A. OLS V2 (base scenario)												
λ^1_5	0.200	0.228	0.265	0.260	0.305	0.308	0.299	0.340	0.364	0.353	0.369	0.379
λ^1_{15}	0.186	0.243	0.416	0.280	0.300	0.424	0.304	0.333	0.345	0.319	0.343	0.376
λ^1_{30}	0.205	0.235	0.249	0.281	0.249	0.298	0.299	0.356	0.343	0.350	0.379	0.365
λ^1_{45}	0.192	0.231	0.335	0.425	0.305	0.293	0.302	0.324	0.317	0.367	0.374	0.368
λ^1_{60}	0.187	0.241	0.313	0.265	0.269	0.292	0.319	0.345	0.341	0.356	0.364	0.355
Panel B. OLS V2 (optimal Q and S)												
λ^1_5	0.185	0.202	0.210	0.248	0.262	0.276	0.279	0.302	0.336	0.322	0.330	0.330
λ^1_{15}	0.181	0.208	0.235	0.252	0.254	0.284	0.280	0.293	0.314	0.298	0.309	0.344
λ^1_{30}	0.188	0.208	0.226	0.250	0.233	0.279	0.271	0.320	0.314	0.325	0.342	0.340
λ^1_{45}	0.177	0.206	0.221	0.253	0.286	0.274	0.275	0.295	0.300	0.323	0.338	0.324
λ^1_{60}	0.178	0.215	0.228	0.236	0.249	0.265	0.293	0.315	0.301	0.318	0.322	0.330
Panel C. UK V2												
λ^1_5	0.264	0.295	0.327	0.342	0.372	0.388	0.381	0.387	0.420	0.435	0.407	0.423
λ^1_{15}	0.276	0.301	0.334	0.345	0.375	0.394	0.389	0.400	0.440	0.419	0.424	0.430
λ^1_{30}	0.265	0.295	0.355	0.343	0.353	0.385	0.382	0.411	0.407	0.431	0.423	0.423
λ^1_{45}	0.259	0.290	0.320	0.369	0.370	0.365	0.396	0.399	0.398	0.414	0.439	0.448
λ^1_{60}	0.257	0.298	0.337	0.345	0.390	0.379	0.394	0.388	0.404	0.405	0.418	0.409
Panel D. MK V2												
λ^1_5	0.293	0.308	0.355	0.392	0.468	0.506	0.521	0.532	0.585	0.632	0.613	0.638
λ^1_{15}	0.350	0.353	0.359	0.330	0.374	0.397	0.430	0.452	0.482	0.474	0.505	0.507
λ^1_{30}	0.414	0.402	0.408	0.413	0.402	0.413	0.364	0.403	0.398	0.431	0.428	0.438
λ^1_{45}	0.498	0.417	0.429	0.428	0.443	0.428	0.427	0.393	0.390	0.392	0.423	0.430
λ^1_{60}	0.598	0.521	0.508	0.455	0.449	0.449	0.446	0.521	0.467	0.478	0.461	0.470
Panel E. FTRK V2												
λ^1_5	0.239	0.278	0.349	0.387	0.466	0.502	0.531	0.542	0.597	0.649	0.651	0.673
λ^1_{15}	0.326	0.321	0.312	0.329	0.387	0.415	0.465	0.496	0.529	0.526	0.568	0.570
λ^1_{30}	0.409	0.408	0.404	0.406	0.379	0.369	0.392	0.433	0.433	0.481	0.494	0.491
λ^1_{45}	0.518	0.441	0.450	0.440	0.458	0.436	0.414	0.418	0.413	0.436	0.477	0.517
λ^1_{60}	0.664	0.604	0.572	0.503	0.511	0.471	0.474	0.504	0.485	0.486	0.471	0.481

Table B13: Noise Model 3 (MA(1)) - Covariance (V12) - BIAS.

	λ^2_5	λ^2_{10}	λ^2_{15}	λ^2_{20}	λ^2_{25}	λ^2_{30}	λ^2_{35}	λ^2_{40}	λ^2_{45}	λ^2_{50}	λ^2_{55}	λ^2_{60}
Panel A. OLS V12 (base scenario)												
λ^1_5	-0.009	-0.011	-0.016	-0.018	-0.018	-0.021	-0.018	-0.020	-0.008	-0.032	-0.043	-0.033
λ^1_{15}	-0.017	-0.011	-0.009	-0.011	-0.016	-0.014	-0.016	-0.021	-0.018	-0.013	-0.019	-0.018
λ^1_{30}	-0.020	-0.011	-0.013	-0.012	-0.018	-0.018	-0.011	-0.011	-0.004	-0.015	-0.020	-0.014
λ^1_{45}	-0.033	-0.014	-0.022	-0.017	-0.017	-0.014	-0.005	-0.015	-0.008	-0.020	-0.025	-0.010
λ^1_{60}	-0.022	-0.018	-0.010	-0.020	-0.017	-0.017	-0.010	-0.009	-0.030	-0.009	-0.020	-0.010
Panel B. OLS V12 (optimal Q and S)												
λ^1_5	-0.009	-0.011	-0.016	-0.018	-0.018	-0.022	-0.017	-0.020	-0.008	-0.032	-0.042	-0.033
λ^1_{15}	-0.016	-0.011	-0.009	-0.012	-0.016	-0.013	-0.016	-0.021	-0.017	-0.013	-0.018	-0.019
λ^1_{30}	-0.021	-0.012	-0.013	-0.011	-0.018	-0.017	-0.011	-0.011	-0.005	-0.014	-0.021	-0.015
λ^1_{45}	-0.033	-0.014	-0.020	-0.017	-0.017	-0.014	-0.006	-0.016	-0.009	-0.019	-0.021	-0.011
λ^1_{60}	-0.022	-0.018	-0.011	-0.020	-0.017	-0.016	-0.009	-0.010	-0.030	-0.008	-0.021	-0.009
Panel C. HY V12												
λ^1_5	-0.002	0.004	-0.006	0.004	0.021	0.005	-0.034	-0.008	-0.039	-0.028	-0.029	0.002
λ^1_{15}	-0.007	-0.017	-0.003	-0.024	-0.044	0.000	0.026	-0.010	0.011	-0.008	-0.006	0.011
λ^1_{30}	-0.021	0.005	-0.006	0.029	0.017	0.010	-0.003	-0.021	0.015	0.019	-0.008	0.004
λ^1_{45}	-0.031	-0.010	-0.010	0.008	0.024	0.016	-0.003	0.003	-0.016	0.012	0.006	0.007
λ^1_{60}	-0.002	0.002	-0.023	0.003	0.036	0.008	0.014	0.008	-0.005	-0.003	0.001	0.000
Panel D. HYS V12												
λ^1_5	-0.009	-0.006	-0.010	-0.014	-0.013	-0.019	-0.017	-0.016	-0.010	-0.026	-0.036	-0.025
λ^1_{15}	-0.012	-0.010	-0.004	-0.008	-0.017	-0.010	-0.009	-0.017	-0.013	-0.012	-0.017	-0.014
λ^1_{30}	-0.017	-0.008	-0.009	-0.006	-0.013	-0.012	-0.009	-0.012	-0.003	-0.008	-0.016	-0.013
λ^1_{45}	-0.030	-0.011	-0.015	-0.013	-0.013	-0.006	-0.007	-0.012	-0.007	-0.012	-0.012	-0.006
λ^1_{60}	-0.017	-0.017	-0.013	-0.017	-0.009	-0.013	-0.005	-0.007	-0.022	-0.007	-0.017	-0.006
Panel E. MK V12												
λ^1_5	-0.003	-0.003	-0.005	-0.001	-0.001	0.000	0.002	0.002	0.011	0.006	0.000	0.006
λ^1_{15}	-0.004	-0.007	-0.009	-0.007	-0.008	-0.005	-0.003	-0.005	-0.002	-0.003	0.004	0.001
λ^1_{30}	-0.002	0.000	-0.007	-0.009	-0.018	-0.022	-0.008	-0.014	-0.010	-0.018	-0.014	-0.009
λ^1_{45}	-0.004	0.003	-0.002	-0.005	-0.009	-0.017	-0.014	-0.019	-0.022	-0.028	-0.018	-0.030
λ^1_{60}	0.009	-0.001	0.001	-0.004	-0.009	-0.010	-0.012	-0.018	-0.029	-0.026	-0.032	-0.027
Panel F. FTRK V12												
λ^1_5	0.000	-0.004	-0.003	0.000	-0.001	-0.002	0.001	-0.001	0.010	0.004	-0.002	0.005
λ^1_{15}	-0.005	-0.005	-0.002	-0.002	-0.002	-0.002	-0.001	-0.003	-0.001	-0.003	0.006	0.002
λ^1_{30}	-0.006	0.002	-0.006	-0.005	-0.012	-0.011	0.004	-0.005	-0.002	-0.011	-0.010	-0.003
λ^1_{45}	-0.006	0.002	-0.001	-0.003	-0.004	-0.010	-0.003	-0.004	-0.006	-0.008	-0.009	-0.013
λ^1_{60}	0.009	0.000	0.004	-0.002	-0.005	-0.006	-0.005	-0.004	-0.016	-0.002	-0.015	-0.007

Table B14: Noise Model 3 (MA(1)) - Covariance (V12) - RMSE.

	λ^2_5	λ^2_{10}	λ^2_{15}	λ^2_{20}	λ^2_{25}	λ^2_{30}	λ^2_{35}	λ^2_{40}	λ^2_{45}	λ^2_{50}	λ^2_{55}	λ^2_{60}
Panel A. OLS V12 (base scenario)												
λ^1_5	0.124	0.147	0.177	0.200	0.215	0.230	0.255	0.269	0.287	0.293	0.304	0.337
λ^1_{15}	0.163	0.150	0.146	0.157	0.180	0.193	0.199	0.214	0.234	0.243	0.243	0.248
λ^1_{30}	0.212	0.182	0.173	0.185	0.172	0.171	0.186	0.184	0.214	0.221	0.217	0.222
λ^1_{45}	0.261	0.219	0.206	0.211	0.202	0.189	0.206	0.200	0.212	0.191	0.210	0.224
λ^1_{60}	0.298	0.251	0.249	0.213	0.224	0.215	0.199	0.200	0.198	0.225	0.241	0.208
Panel B. OLS V12 (optimal Q and S)												
λ^1_5	0.119	0.140	0.173	0.197	0.211	0.228	0.250	0.273	0.287	0.290	0.304	0.341
λ^1_{15}	0.156	0.143	0.141	0.152	0.180	0.189	0.196	0.212	0.234	0.239	0.236	0.245
λ^1_{30}	0.211	0.178	0.173	0.183	0.170	0.170	0.184	0.181	0.198	0.217	0.216	0.212
λ^1_{45}	0.264	0.214	0.200	0.201	0.200	0.184	0.201	0.196	0.200	0.191	0.199	0.211
λ^1_{60}	0.301	0.247	0.238	0.211	0.218	0.209	0.199	0.192	0.195	0.223	0.217	0.197
Panel C. HY V12												
λ^1_5	1.446	1.160	1.005	0.885	0.856	0.734	0.691	0.681	0.616	0.633	0.599	0.582
λ^1_{15}	0.990	0.896	0.824	0.754	0.688	0.666	0.645	0.627	0.579	0.557	0.548	0.501
λ^1_{30}	0.755	0.697	0.663	0.607	0.586	0.575	0.558	0.541	0.542	0.496	0.504	0.476
λ^1_{45}	0.652	0.627	0.582	0.581	0.564	0.521	0.501	0.499	0.480	0.460	0.494	0.467
λ^1_{60}	0.586	0.572	0.532	0.516	0.536	0.510	0.481	0.466	0.464	0.471	0.435	0.448
Panel D. HYS V12												
λ^1_5	0.122	0.130	0.147	0.150	0.162	0.177	0.185	0.202	0.212	0.218	0.223	0.252
λ^1_{15}	0.137	0.137	0.143	0.142	0.161	0.160	0.166	0.175	0.187	0.192	0.185	0.195
λ^1_{30}	0.161	0.149	0.152	0.162	0.148	0.168	0.170	0.161	0.175	0.192	0.186	0.172
λ^1_{45}	0.194	0.170	0.170	0.168	0.178	0.171	0.185	0.177	0.181	0.173	0.187	0.186
λ^1_{60}	0.218	0.195	0.190	0.175	0.193	0.183	0.178	0.188	0.174	0.218	0.197	0.188
Panel E. MK V12												
λ^1_5	0.121	0.154	0.189	0.208	0.217	0.229	0.252	0.267	0.286	0.283	0.297	0.330
λ^1_{15}	0.168	0.155	0.144	0.155	0.184	0.199	0.197	0.216	0.236	0.237	0.241	0.251
λ^1_{30}	0.225	0.194	0.181	0.183	0.183	0.175	0.185	0.184	0.202	0.224	0.213	0.219
λ^1_{45}	0.271	0.230	0.213	0.212	0.204	0.194	0.198	0.196	0.191	0.186	0.207	0.205
λ^1_{60}	0.311	0.260	0.250	0.220	0.228	0.218	0.195	0.202	0.203	0.200	0.207	0.191
Panel F. FTRK V12												
λ^1_5	0.117	0.147	0.193	0.213	0.219	0.229	0.254	0.271	0.297	0.291	0.306	0.342
λ^1_{15}	0.159	0.158	0.153	0.168	0.208	0.216	0.214	0.243	0.255	0.259	0.274	0.289
λ^1_{30}	0.224	0.206	0.199	0.201	0.223	0.197	0.216	0.214	0.246	0.259	0.253	0.266
λ^1_{45}	0.279	0.248	0.238	0.235	0.234	0.227	0.227	0.235	0.246	0.224	0.245	0.248
λ^1_{60}	0.333	0.297	0.294	0.257	0.261	0.264	0.237	0.257	0.249	0.255	0.243	0.234

Table B15: Noise Model 3 (MA(1)) - Variance of Process 1 (V1) - BIAS.

	λ^2_5	λ^2_{10}	λ^2_{15}	λ^2_{20}	λ^2_{25}	λ^2_{30}	λ^2_{35}	λ^2_{40}	λ^2_{45}	λ^2_{50}	λ^2_{55}	λ^2_{60}
Panel A. OLS V1 (base scenario)												
λ^1_5	-0.003	-0.009	-0.009	-0.006	-0.004	-0.005	-0.003	0.001	-0.007	-0.003	-0.005	-0.002
λ^1_{15}	0.013	-0.018	-0.021	0.014	-0.080	0.013	0.001	0.024	-0.078	-0.019	0.007	0.044
λ^1_{30}	-0.003	0.002	-0.002	0.027	-0.013	-0.003	-0.042	0.009	-0.003	-0.038	0.007	0.008
λ^1_{45}	-0.018	-0.009	0.000	-0.020	0.005	0.011	0.010	0.000	-0.001	-0.006	-0.006	0.002
λ^1_{60}	-0.011	-0.012	-0.021	-0.010	-0.016	-0.001	-0.001	-0.002	-0.018	-0.003	-0.019	-0.003
Panel B. OLS V1 (optimal Q and S)												
λ^1_5	-0.076	-0.076	-0.073	-0.077	-0.085	-0.083	-0.077	-0.078	-0.078	-0.077	-0.080	-0.078
λ^1_{15}	-0.032	-0.037	-0.027	-0.033	-0.037	-0.036	-0.036	-0.035	-0.031	-0.036	-0.030	-0.038
λ^1_{30}	-0.017	-0.014	-0.021	-0.014	-0.028	-0.022	-0.007	-0.017	-0.013	-0.023	-0.008	-0.023
λ^1_{45}	-0.031	-0.018	-0.004	-0.026	-0.004	-0.015	-0.002	-0.011	-0.011	-0.013	-0.015	-0.007
λ^1_{60}	-0.012	-0.018	-0.031	-0.013	-0.023	-0.013	-0.002	-0.005	-0.025	-0.007	-0.025	-0.006
Panel C. UK V1												
λ^1_5	0.133	0.128	0.132	0.134	0.137	0.131	0.133	0.137	0.133	0.133	0.134	0.135
λ^1_{15}	0.155	0.143	0.150	0.148	0.147	0.156	0.153	0.155	0.155	0.153	0.153	0.149
λ^1_{30}	0.172	0.171	0.163	0.170	0.153	0.169	0.185	0.173	0.163	0.163	0.171	0.178
λ^1_{45}	0.173	0.183	0.197	0.174	0.194	0.181	0.197	0.189	0.200	0.196	0.186	0.202
λ^1_{60}	0.210	0.197	0.209	0.197	0.189	0.206	0.206	0.206	0.195	0.211	0.187	0.205
Panel D. MK V1												
λ^1_5	0.186	0.143	0.107	0.092	0.086	0.071	0.066	0.075	0.067	0.063	0.053	0.056
λ^1_{15}	0.081	0.111	0.324	0.265	0.193	0.178	0.168	0.152	0.127	0.131	0.122	0.115
λ^1_{30}	0.062	0.093	0.106	0.117	0.138	0.153	0.350	0.325	0.249	0.254	0.224	0.217
λ^1_{45}	0.052	0.090	0.101	0.104	0.129	0.149	0.173	0.173	0.199	0.438	0.332	0.354
λ^1_{60}	0.073	0.075	0.098	0.102	0.119	0.128	0.148	0.165	0.149	0.185	0.174	0.264
Panel E. FTRK V1												
λ^1_5	0.037	0.032	0.024	0.032	0.033	0.026	0.025	0.039	0.033	0.032	0.024	0.031
λ^1_{15}	0.031	0.024	0.056	0.038	0.027	0.027	0.022	0.028	0.031	0.026	0.041	0.027
λ^1_{30}	0.021	0.032	0.022	0.020	0.026	0.023	0.048	0.051	0.023	0.011	0.014	0.030
λ^1_{45}	0.021	0.035	0.033	0.021	0.027	0.013	0.031	0.028	0.028	0.067	0.037	0.053
λ^1_{60}	0.053	0.031	0.043	0.022	0.028	0.028	0.022	0.017	0.008	0.021	0.006	0.033

Table B16: Noise Model 3 (MA(1)) - Variance of Process 1 (V1) - RMSE.

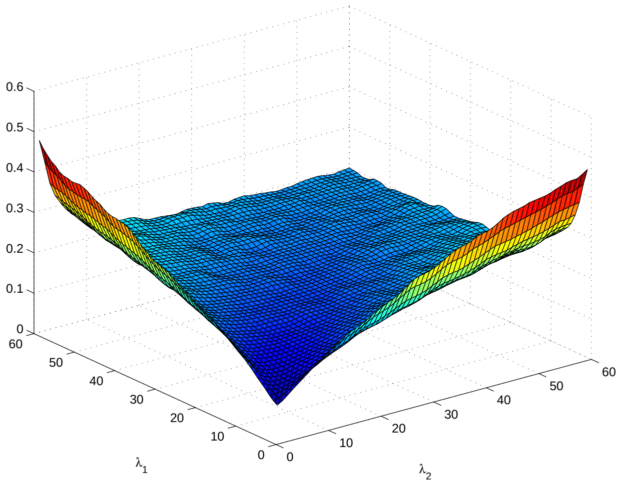
	λ^2_5	λ^2_{10}	λ^2_{15}	λ^2_{20}	λ^2_{25}	λ^2_{30}	λ^2_{35}	λ^2_{40}	λ^2_{45}	λ^2_{50}	λ^2_{55}	λ^2_{60}
Panel A. OLS V1 (base scenario)												
λ^1_5	0.216	0.195	0.186	0.192	0.190	0.185	0.190	0.194	0.204	0.196	0.201	0.202
λ^1_{15}	0.351	0.267	0.328	0.257	0.427	0.260	0.258	0.263	0.241	0.259	0.241	0.302
λ^1_{30}	0.255	0.275	0.248	0.298	0.263	0.308	0.468	0.299	0.277	0.273	0.298	0.272
λ^1_{45}	0.321	0.298	0.307	0.279	0.313	0.340	0.288	0.332	0.293	0.300	0.307	0.351
λ^1_{60}	0.313	0.360	0.342	0.340	0.349	0.360	0.339	0.363	0.346	0.344	0.353	0.333
Panel B. OLS V1 (optimal Q and S)												
λ^1_5	0.235	0.230	0.221	0.218	0.216	0.223	0.220	0.224	0.238	0.215	0.226	0.224
λ^1_{15}	0.206	0.210	0.208	0.223	0.213	0.212	0.232	0.223	0.219	0.233	0.222	0.208
λ^1_{30}	0.233	0.257	0.230	0.257	0.249	0.271	0.256	0.260	0.256	0.248	0.289	0.244
λ^1_{45}	0.302	0.269	0.283	0.258	0.287	0.320	0.267	0.314	0.273	0.279	0.285	0.321
λ^1_{60}	0.291	0.336	0.316	0.306	0.315	0.327	0.308	0.325	0.325	0.308	0.337	0.296
Panel C. UK V1												
λ^1_5	0.280	0.268	0.266	0.272	0.278	0.260	0.259	0.270	0.270	0.263	0.268	0.270
λ^1_{15}	0.315	0.302	0.325	0.339	0.316	0.323	0.343	0.334	0.322	0.334	0.332	0.316
λ^1_{30}	0.373	0.388	0.358	0.377	0.371	0.396	0.397	0.377	0.378	0.366	0.378	0.379
λ^1_{45}	0.418	0.403	0.423	0.405	0.433	0.413	0.408	0.423	0.406	0.423	0.408	0.454
λ^1_{60}	0.437	0.443	0.456	0.442	0.435	0.467	0.441	0.437	0.452	0.449	0.438	0.451
Panel D. MK V1												
λ^1_5	0.295	0.309	0.331	0.360	0.370	0.414	0.437	0.472	0.476	0.478	0.510	0.551
λ^1_{15}	0.309	0.278	0.433	0.414	0.390	0.399	0.399	0.418	0.427	0.438	0.452	0.445
λ^1_{30}	0.463	0.376	0.343	0.346	0.350	0.360	0.508	0.490	0.427	0.455	0.445	0.438
λ^1_{45}	0.554	0.436	0.430	0.411	0.400	0.387	0.365	0.389	0.372	0.592	0.510	0.536
λ^1_{60}	0.634	0.547	0.477	0.458	0.436	0.434	0.407	0.398	0.421	0.407	0.410	0.447
Panel E. FTRK V1												
λ^1_5	0.222	0.253	0.298	0.335	0.348	0.409	0.441	0.483	0.488	0.494	0.529	0.585
λ^1_{15}	0.267	0.254	0.305	0.318	0.344	0.375	0.378	0.421	0.442	0.463	0.487	0.494
λ^1_{30}	0.458	0.373	0.347	0.346	0.352	0.361	0.391	0.403	0.385	0.441	0.423	0.441
λ^1_{45}	0.557	0.459	0.464	0.449	0.436	0.392	0.370	0.389	0.378	0.433	0.438	0.453
λ^1_{60}	0.665	0.601	0.536	0.528	0.495	0.480	0.441	0.433	0.466	0.436	0.417	0.427

Table B17: Noise Model 3 (MA(1)) - Variance of Process 2 (V2) - BIAS.

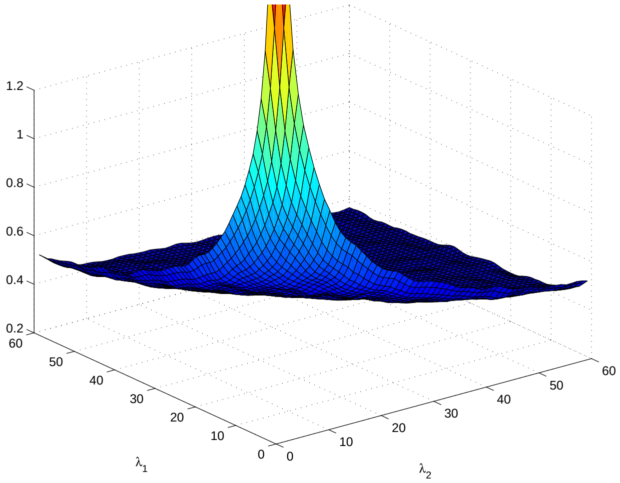
	λ^2_5	λ^2_{10}	λ^2_{15}	λ^2_{20}	λ^2_{25}	λ^2_{30}	λ^2_{35}	λ^2_{40}	λ^2_{45}	λ^2_{50}	λ^2_{55}	λ^2_{60}
Panel A. OLS V2 (base scenario)												
λ^1_5	-0.014	-0.013	-0.108	-0.010	-0.012	-0.022	-0.020	-0.025	-0.001	-0.017	-0.022	-0.014
λ^1_{15}	-0.014	-0.014	0.018	-0.005	-0.014	-0.010	-0.019	-0.012	-0.015	-0.015	0.002	-0.009
λ^1_{30}	-0.011	-0.013	-0.024	-0.009	-0.013	-0.016	-0.010	-0.012	-0.021	-0.008	-0.016	-0.019
λ^1_{45}	-0.011	-0.015	0.036	0.059	-0.018	-0.013	-0.024	-0.011	-0.160	-0.007	-0.025	-0.024
λ^1_{60}	-0.014	-0.016	-0.024	-0.065	-0.031	-0.012	-0.016	-0.011	0.000	-0.015	-0.018	-0.010
Panel B. OLS V2 (optimal Q and S)												
λ^1_5	-0.090	-0.044	-0.039	-0.027	-0.027	-0.029	-0.026	-0.024	-0.009	-0.020	-0.025	-0.016
λ^1_{15}	-0.092	-0.047	-0.034	-0.026	-0.025	-0.022	-0.027	-0.020	-0.017	-0.017	-0.003	-0.012
λ^1_{30}	-0.086	-0.050	-0.037	-0.027	-0.022	-0.026	-0.019	-0.020	-0.028	-0.017	-0.018	-0.020
λ^1_{45}	-0.087	-0.046	-0.035	-0.025	-0.026	-0.022	-0.033	-0.018	-0.027	-0.013	-0.033	-0.026
λ^1_{60}	-0.091	-0.044	-0.033	-0.032	-0.025	-0.028	-0.023	-0.017	-0.007	-0.018	-0.021	-0.021
Panel C. UK V2												
λ^1_5	0.092	0.101	0.102	0.111	0.114	0.113	0.119	0.122	0.147	0.134	0.129	0.142
λ^1_{15}	0.093	0.097	0.102	0.113	0.113	0.121	0.124	0.126	0.136	0.139	0.141	0.142
λ^1_{30}	0.093	0.099	0.103	0.112	0.117	0.116	0.125	0.129	0.125	0.143	0.137	0.140
λ^1_{45}	0.090	0.097	0.100	0.113	0.109	0.122	0.120	0.128	0.125	0.138	0.133	0.130
λ^1_{60}	0.090	0.097	0.104	0.110	0.119	0.110	0.125	0.126	0.133	0.142	0.145	0.147
Panel D. MK V2												
λ^1_5	0.119	0.051	0.041	0.040	0.037	0.028	0.033	0.019	0.038	0.031	0.023	0.022
λ^1_{15}	0.069	0.146	0.088	0.083	0.068	0.060	0.064	0.058	0.050	0.051	0.054	0.055
λ^1_{30}	0.040	0.079	0.119	0.136	0.188	0.251	0.106	0.100	0.101	0.091	0.082	0.079
λ^1_{45}	0.021	0.069	0.077	0.108	0.140	0.194	0.218	0.243	0.248	0.118	0.101	0.102
λ^1_{60}	0.031	0.049	0.064	0.089	0.111	0.116	0.152	0.210	0.188	0.263	0.265	0.229
Panel E. FTRK V2												
λ^1_5	0.019	0.009	0.007	0.013	0.011	0.005	0.015	0.001	0.020	0.011	0.007	0.005
λ^1_{15}	0.009	0.014	0.013	0.020	0.010	0.004	0.013	0.009	0.006	0.006	0.010	0.014
λ^1_{30}	0.006	0.009	0.008	0.011	0.006	0.031	0.020	0.010	0.013	0.010	0.010	0.003
λ^1_{45}	-0.004	0.010	0.001	0.008	0.008	0.014	0.030	0.023	0.019	0.004	0.008	-0.007
λ^1_{60}	0.012	0.011	-0.003	0.000	0.004	-0.002	0.001	0.020	0.005	0.044	0.013	0.029

Table B18: Noise Model 3 (MA(1)) - Variance of Process 2 (V2) - RMSE.

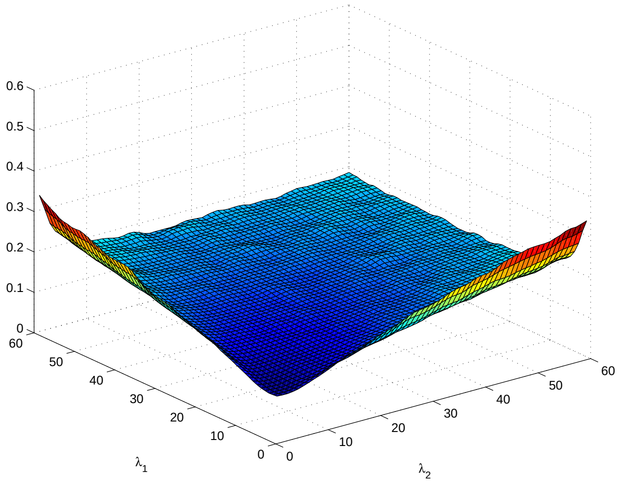
	λ_5^2	λ_{10}^2	λ_{15}^2	λ_{20}^2	λ_{25}^2	λ_{30}^2	λ_{35}^2	λ_{40}^2	λ_{45}^2	λ_{50}^2	λ_{55}^2	λ_{60}^2
Panel A. OLS V2 (base scenario)												
λ_5^1	0.198	0.241	0.529	0.294	0.309	0.297	0.328	0.333	0.336	0.375	0.345	0.380
λ_{15}^1	0.208	0.239	0.319	0.297	0.297	0.304	0.321	0.342	0.363	0.408	0.385	0.381
λ_{30}^1	0.200	0.231	0.270	0.313	0.292	0.296	0.330	0.322	0.354	0.390	0.344	0.369
λ_{45}^1	0.202	0.228	0.393	0.389	0.271	0.303	0.364	0.341	0.541	0.354	0.379	0.357
λ_{60}^1	0.203	0.256	0.269	0.435	0.290	0.309	0.321	0.354	0.353	0.338	0.356	0.391
Panel B. OLS V2 (optimal Q and S)												
λ_5^1	0.203	0.213	0.260	0.255	0.274	0.278	0.296	0.304	0.304	0.329	0.313	0.345
λ_{15}^1	0.209	0.215	0.232	0.252	0.278	0.281	0.284	0.314	0.333	0.346	0.332	0.354
λ_{30}^1	0.198	0.208	0.225	0.265	0.264	0.270	0.303	0.293	0.320	0.360	0.304	0.343
λ_{45}^1	0.201	0.206	0.236	0.256	0.255	0.276	0.320	0.307	0.299	0.314	0.342	0.326
λ_{60}^1	0.206	0.221	0.226	0.240	0.255	0.281	0.297	0.328	0.314	0.299	0.319	0.352
Panel C. UK V2												
λ_5^1	0.271	0.301	0.361	0.381	0.393	0.383	0.391	0.387	0.426	0.439	0.420	0.449
λ_{15}^1	0.272	0.311	0.337	0.364	0.383	0.397	0.388	0.424	0.440	0.435	0.457	0.436
λ_{30}^1	0.278	0.311	0.330	0.390	0.384	0.391	0.396	0.404	0.449	0.453	0.433	0.446
λ_{45}^1	0.266	0.310	0.330	0.371	0.369	0.402	0.413	0.406	0.405	0.438	0.447	0.436
λ_{60}^1	0.276	0.309	0.330	0.366	0.386	0.376	0.403	0.427	0.417	0.409	0.446	0.446
Panel D. MK V2												
λ_5^1	0.279	0.315	0.378	0.434	0.455	0.490	0.524	0.562	0.588	0.589	0.586	0.656
λ_{15}^1	0.352	0.360	0.319	0.351	0.381	0.394	0.412	0.458	0.471	0.479	0.508	0.501
λ_{30}^1	0.434	0.393	0.396	0.404	0.423	0.466	0.378	0.398	0.433	0.455	0.443	0.436
λ_{45}^1	0.507	0.437	0.435	0.432	0.440	0.466	0.485	0.471	0.479	0.401	0.422	0.420
λ_{60}^1	0.544	0.495	0.469	0.443	0.448	0.439	0.442	0.493	0.454	0.513	0.504	0.466
Panel E. FTRK V2												
λ_5^1	0.235	0.287	0.370	0.423	0.447	0.492	0.527	0.568	0.601	0.602	0.607	0.683
λ_{15}^1	0.325	0.315	0.303	0.350	0.398	0.417	0.425	0.490	0.511	0.528	0.563	0.563
λ_{30}^1	0.423	0.391	0.385	0.404	0.409	0.413	0.393	0.435	0.480	0.489	0.508	0.513
λ_{45}^1	0.527	0.449	0.464	0.450	0.450	0.467	0.460	0.455	0.478	0.431	0.462	0.489
λ_{60}^1	0.583	0.550	0.539	0.488	0.487	0.493	0.474	0.490	0.477	0.525	0.506	0.474



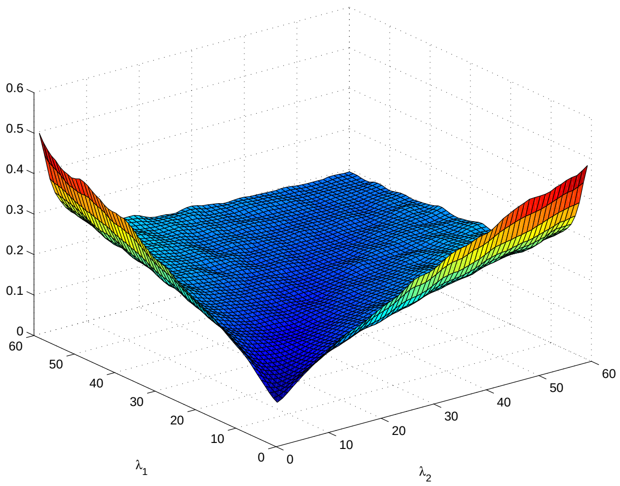
(h) OLS V12



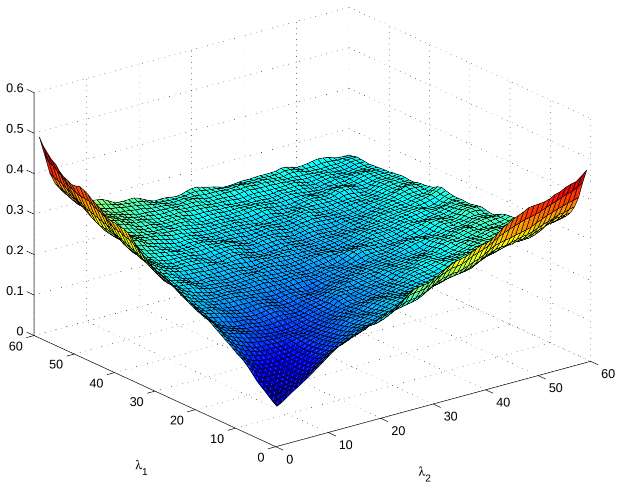
(i) HY V12



(j) HYS V12

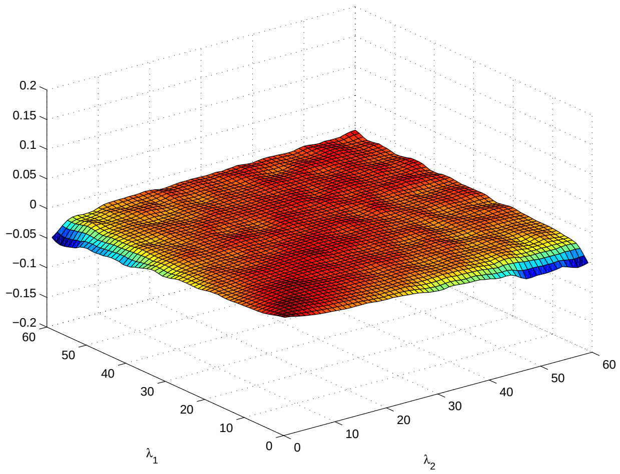


(k) MK V12

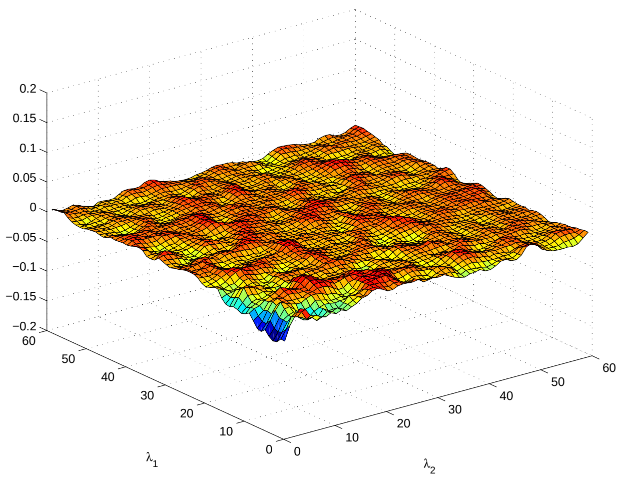


(l) FTRK V12

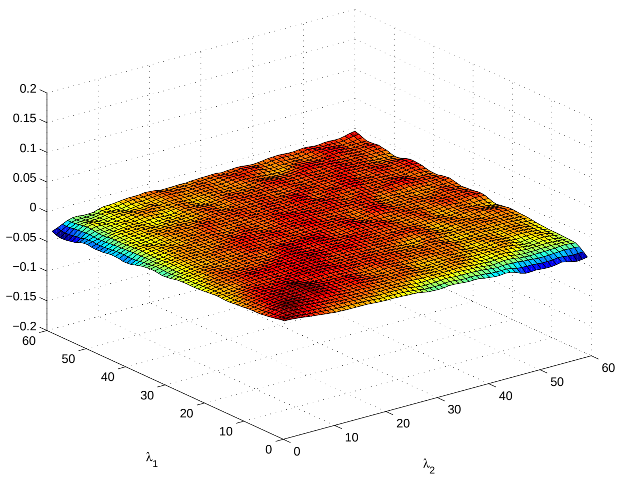
Graph B1: Noise Model 1 (*i.i.d.*) - Covariance (V12) - RMSE.



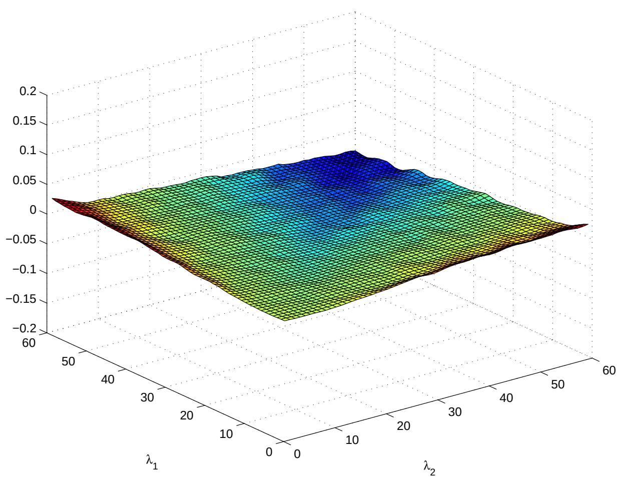
(a) OLS V12



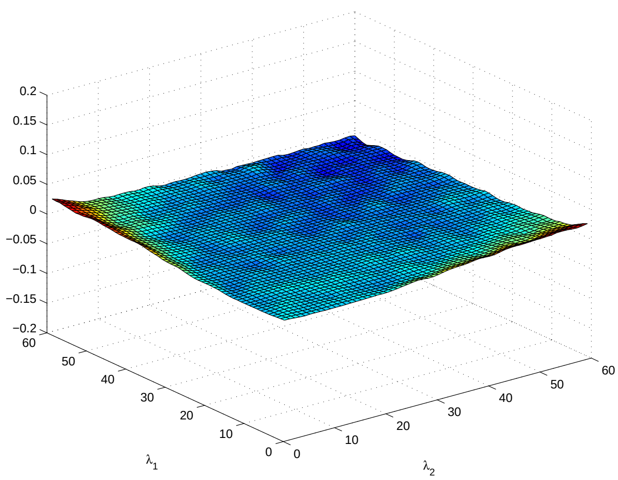
(b) HY V12



(c) HYS V12

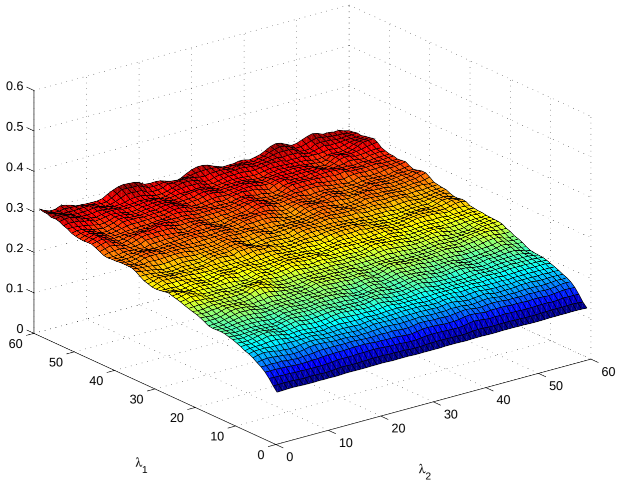


(d) MK V12

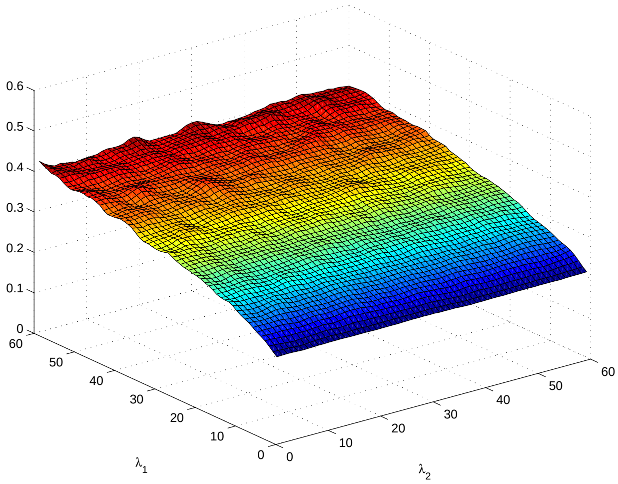


(e) FTRK V12

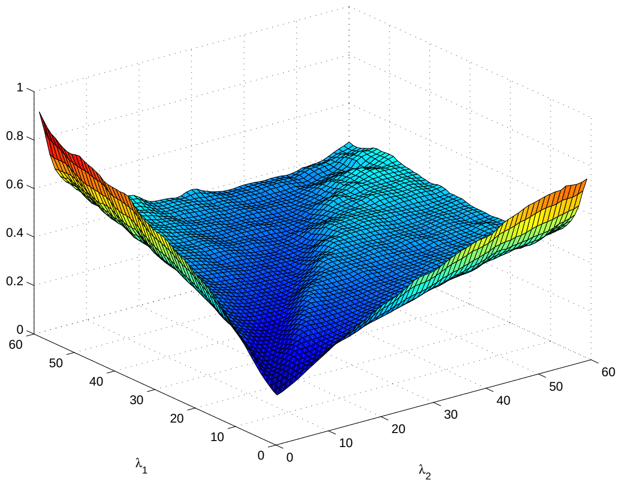
Graph B2: Noise Model 1 (*i.i.d.*) - Covariance (V12) - BIAS.



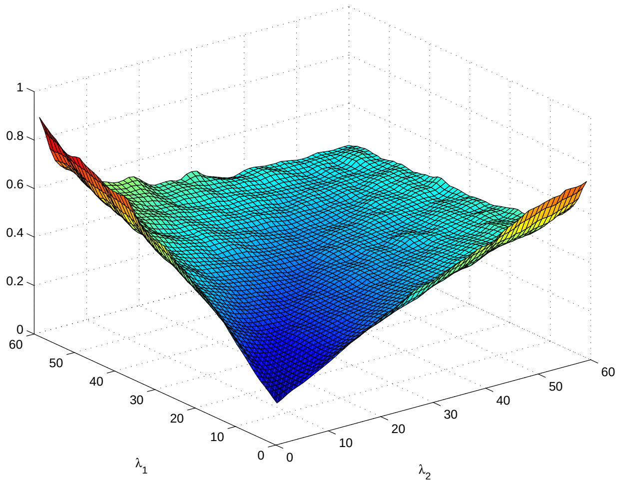
(a) OLS V1



(b) UK V1

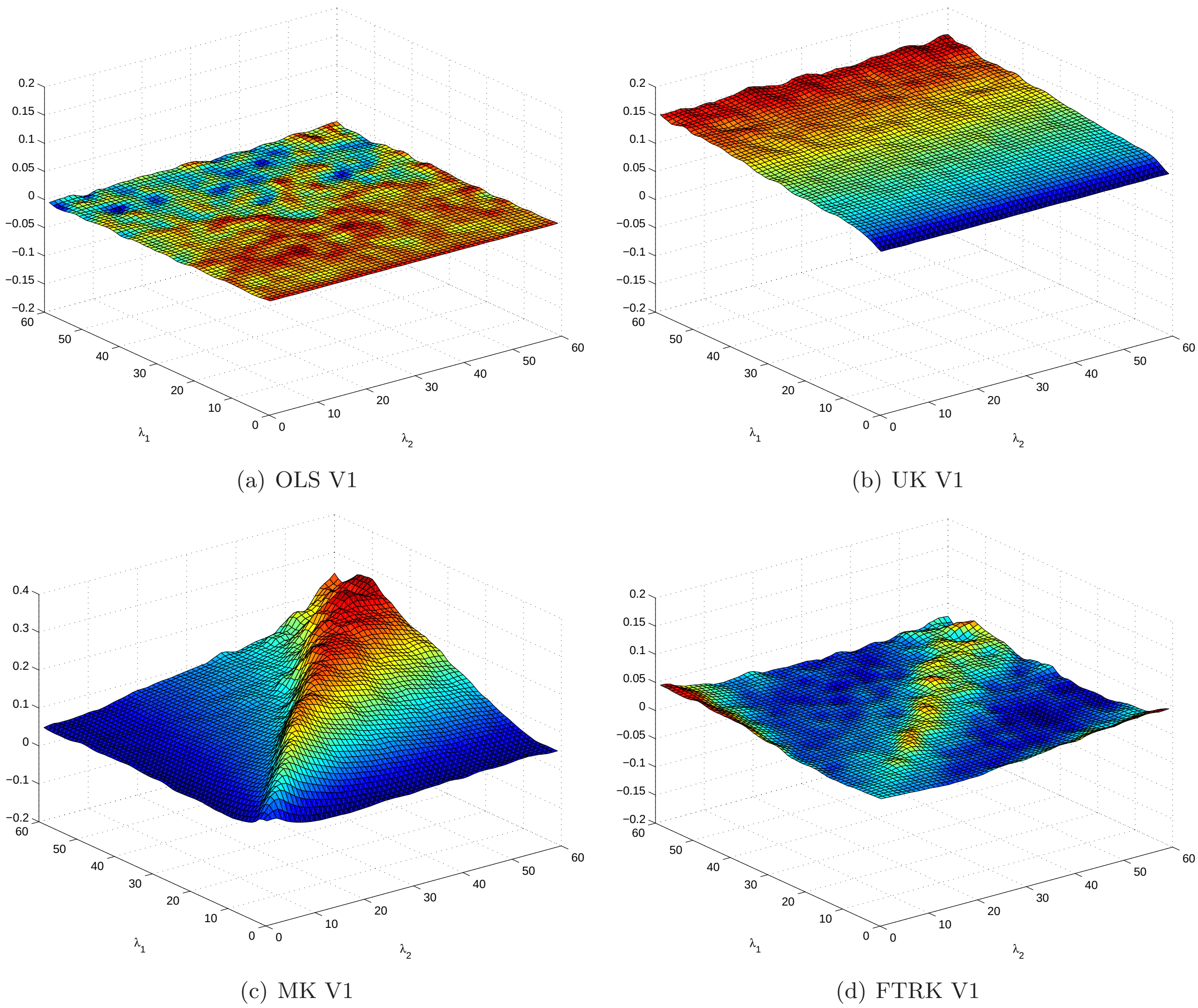


(c) MK V1



(d) FTRK V1

Graph B3: Noise Model 1 (*i.i.d.*) - Variance of Process 1 (V1) - RMSE.



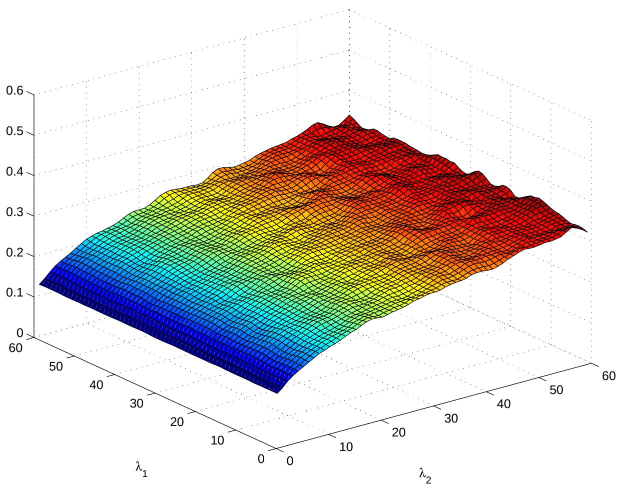
(a) OLS V1

(b) UK V1

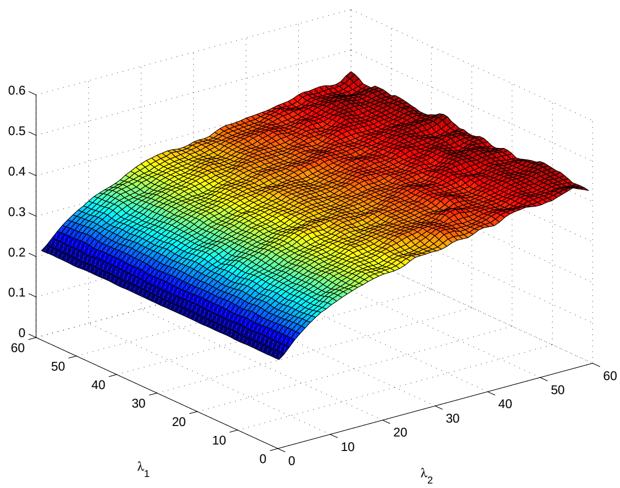
(c) MK V1

(d) FTRK V1

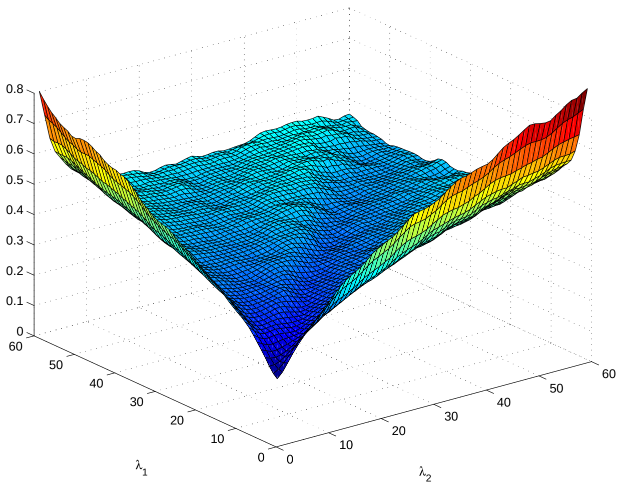
Graph B4: Noise Model 1 (*i.i.d.*) - Variance of Process 1 (V1) - BIAS.



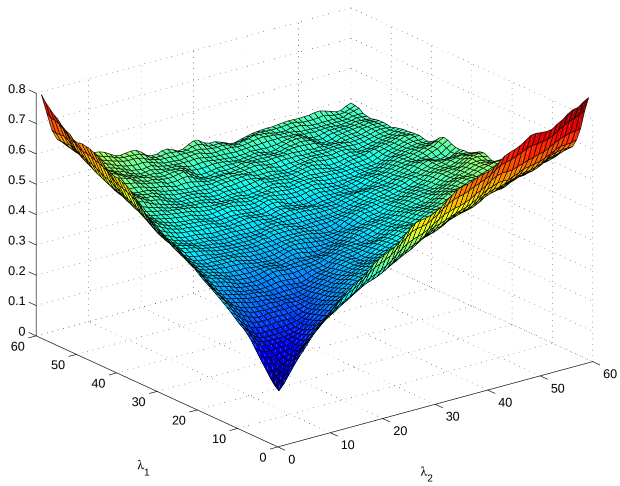
(a) OLS V2



(b) UK V2

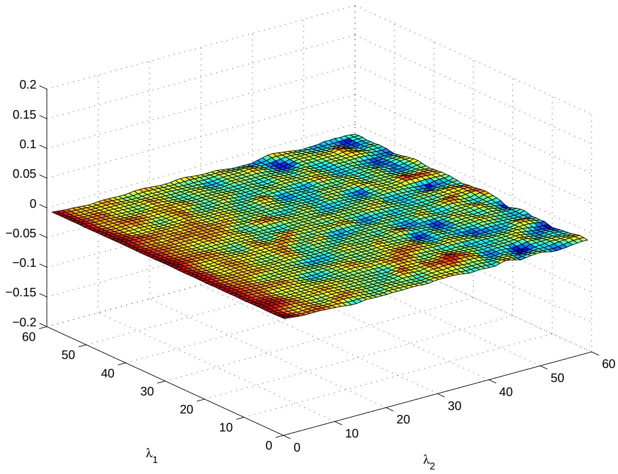


(c) MK V2

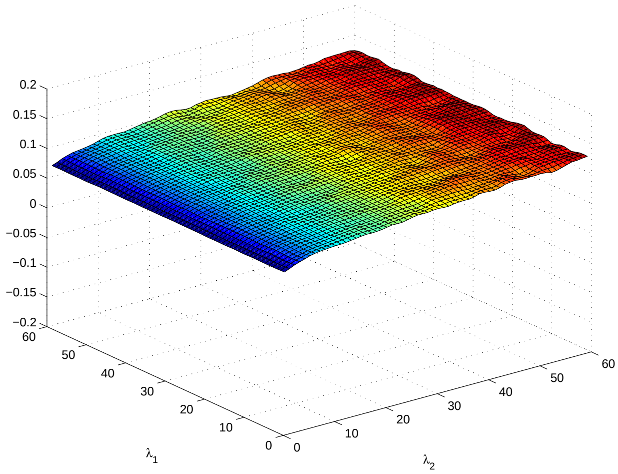


(d) FTRK V2

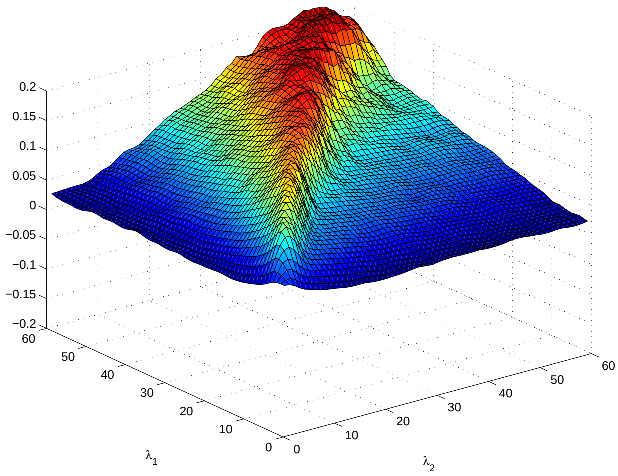
Graph B5: Noise Model 1 (*i.i.d.*) - Variance of Process 2 (V2) - RMSE.



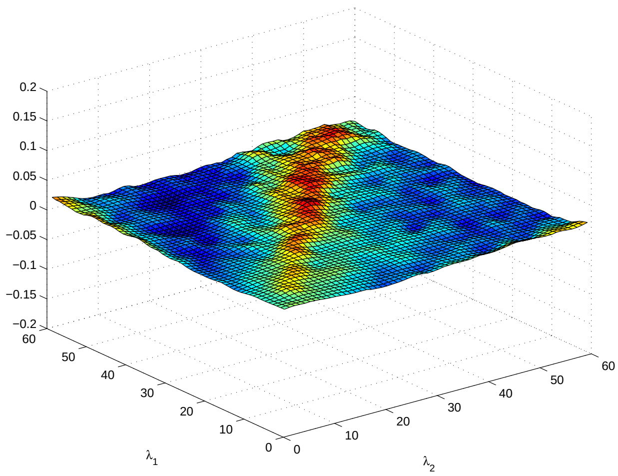
(a) OLS V2



(b) UK V2

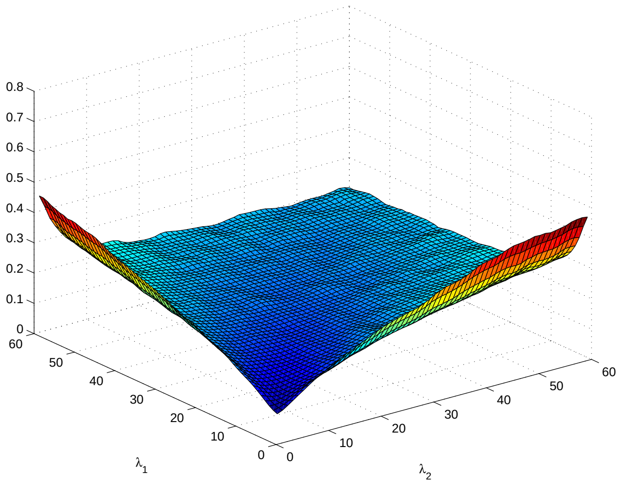


(c) MK V2

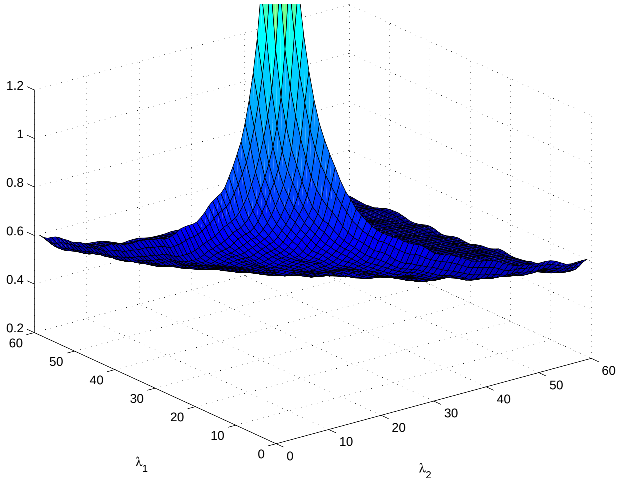


(d) FTRK V2

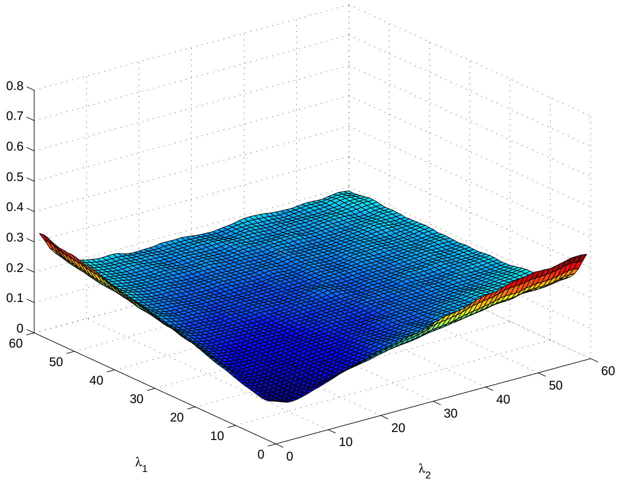
Graph B6: Noise Model 1 (*i.i.d.*) - Variance of Process 2 (V2) - BIAS.



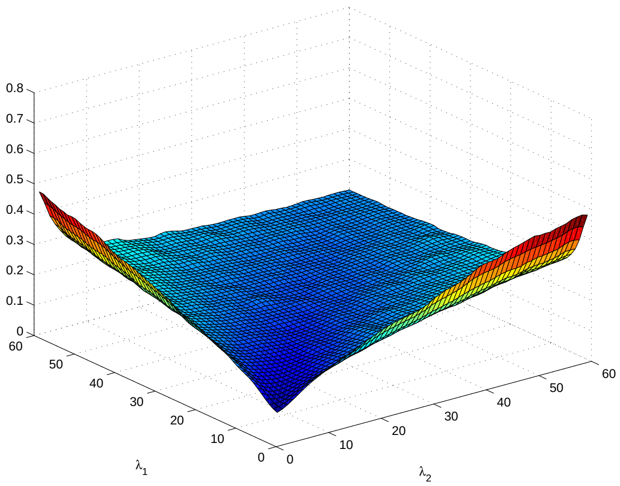
(a) OLS V12



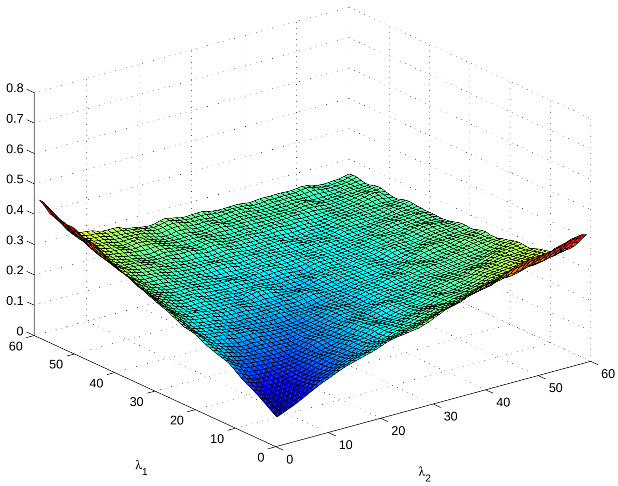
(b) HY V12



(c) HYS V12

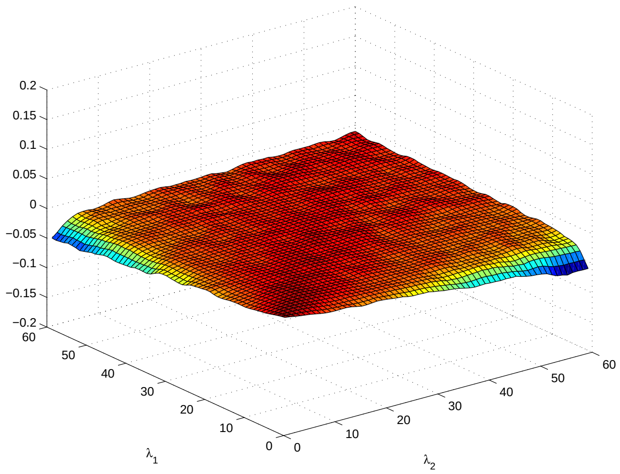


(d) MK V12

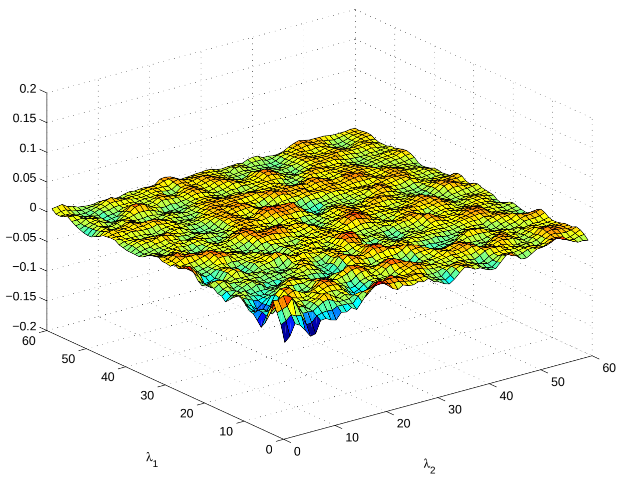


(e) FTRK V12

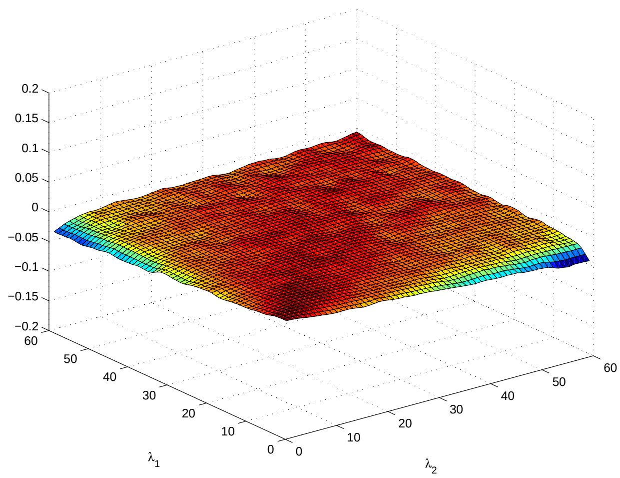
Graph B7: Noise Model 2 (AR(1)) - Covariance (V12) - RMSE.



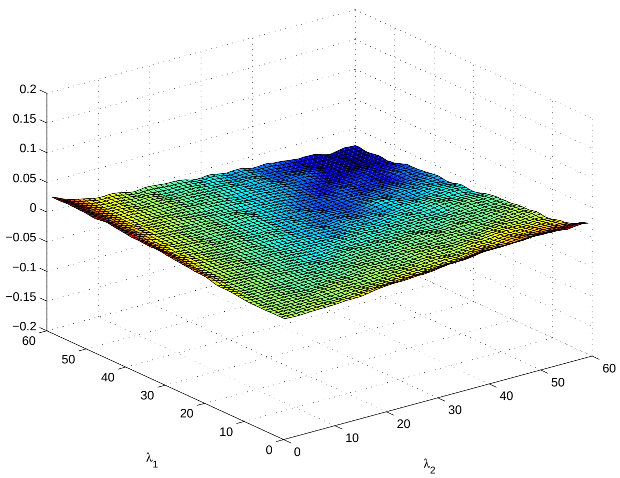
(a) OLS V12



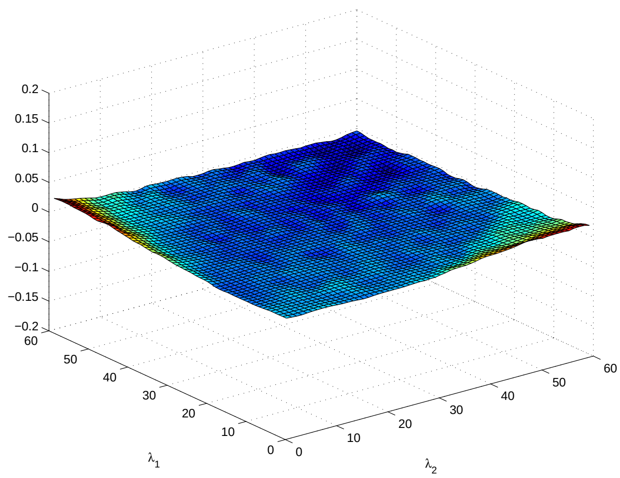
(b) HY V12



(c) HYS V12

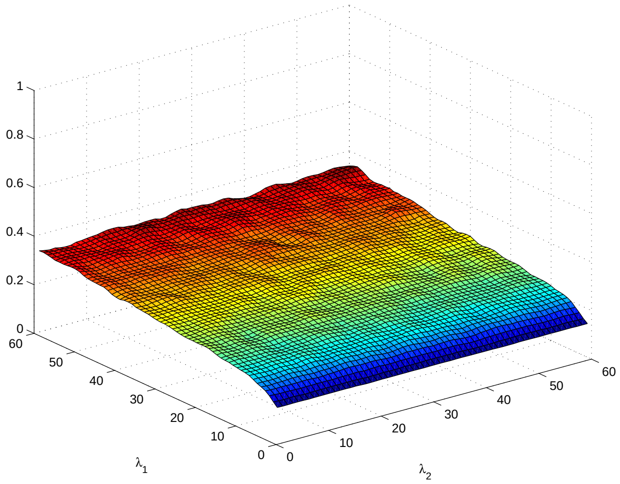


(d) MK V12

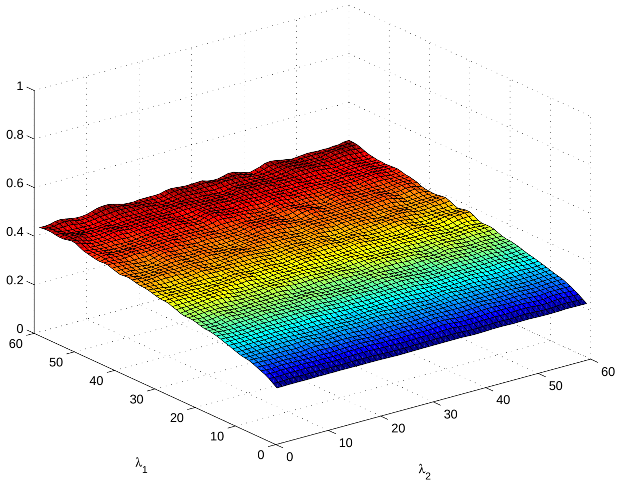


(e) FTRK V12

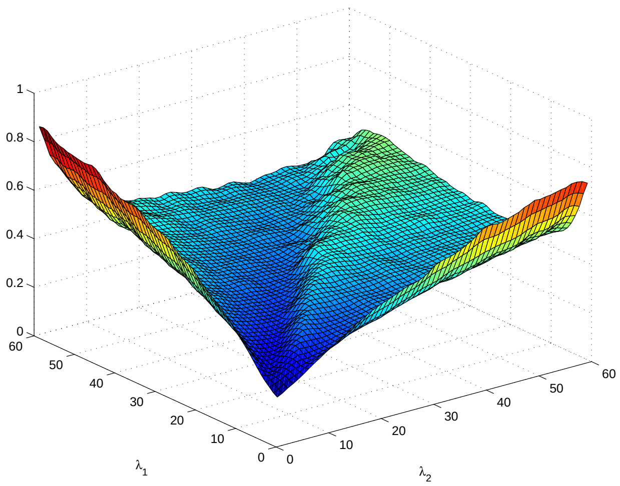
Graph B8: Noise Model 2 (AR(1)) - Covariance (V12) - BIAS.



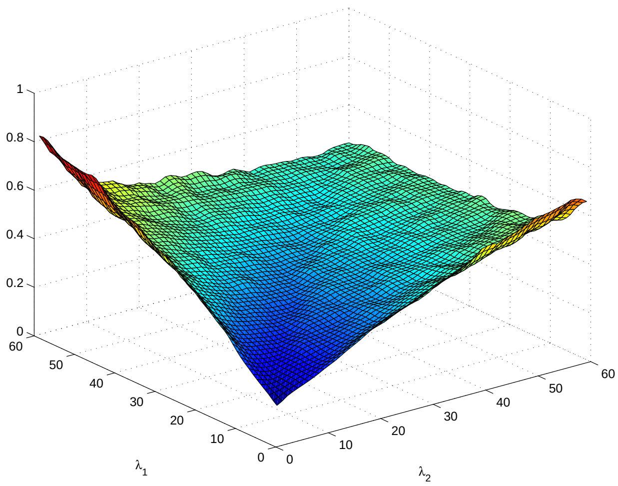
(a) OLS V1



(b) UK V1

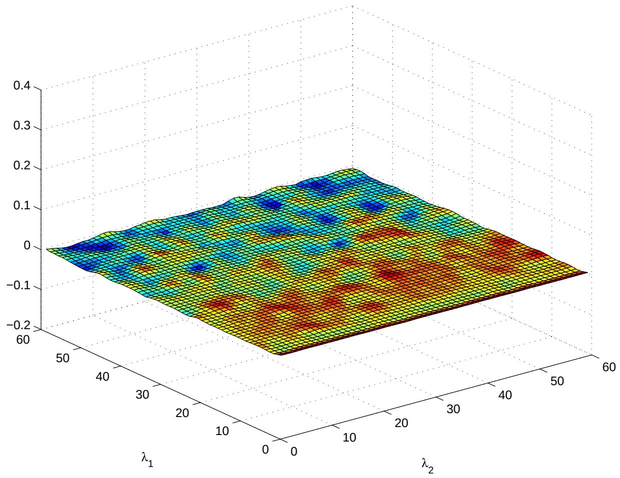


(c) RK V1

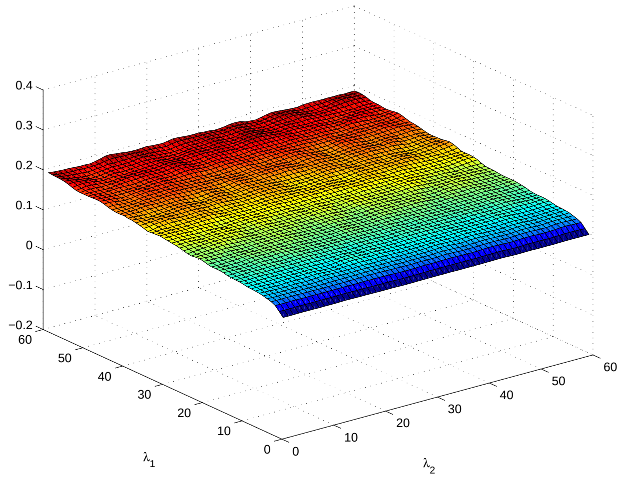


(d) FTRK V1

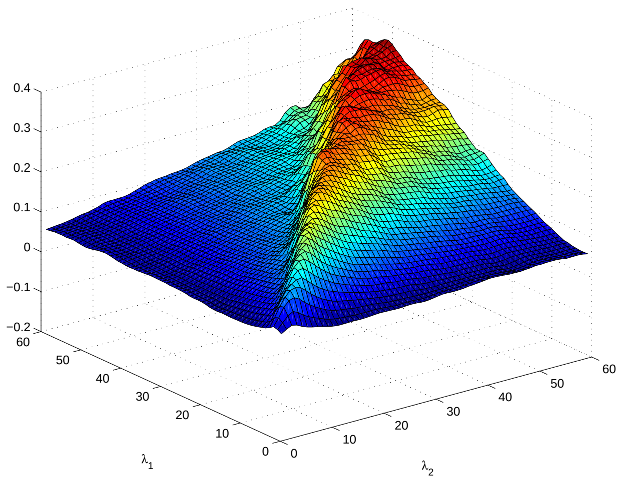
Graph B9: Noise Model 2 (AR(1)) - Variance of Process 1 (V1) - RMSE.



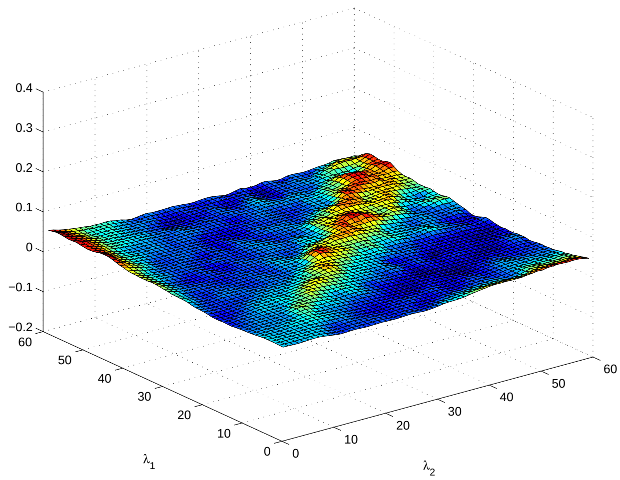
(a) OLS V1



(b) UK V1

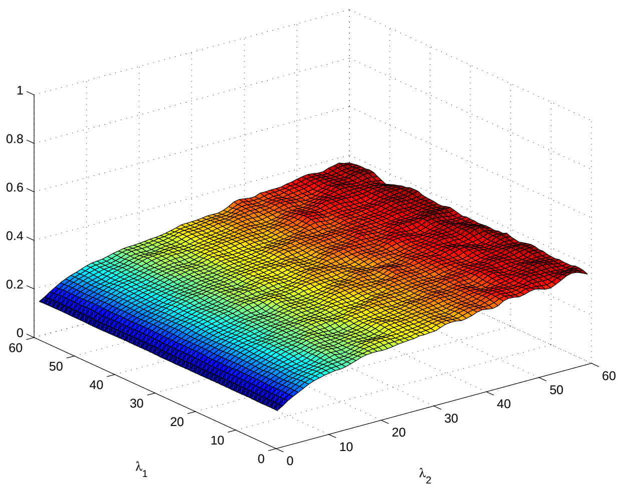


(c) MK V1

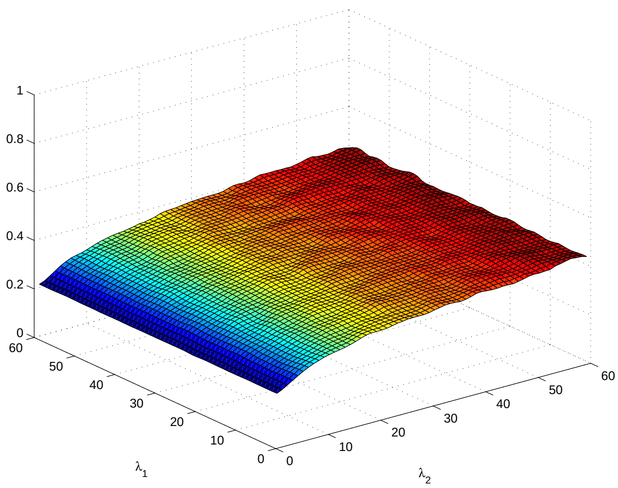


(d) FTRK V1

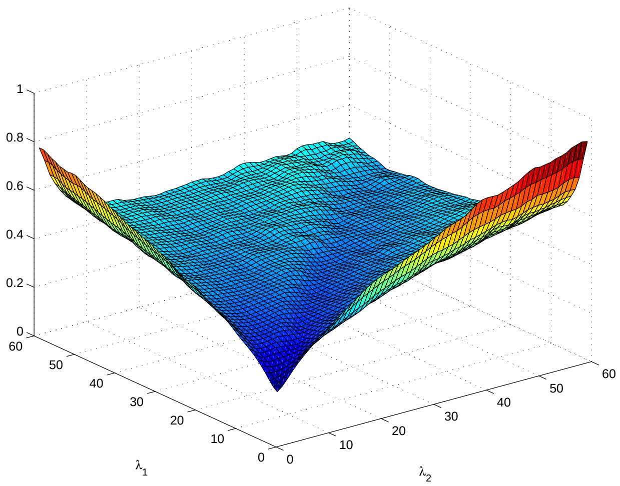
Graph B10: Noise Model 2 (AR(1)) - Variance of Process 1 (V1) - BIAS.



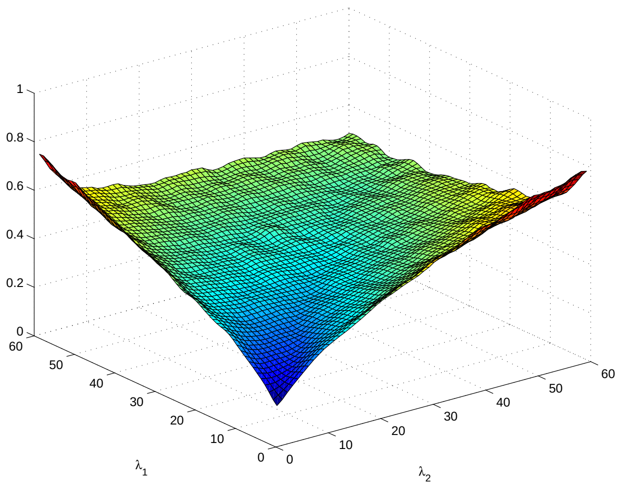
(a) OLS V2



(b) UK V2

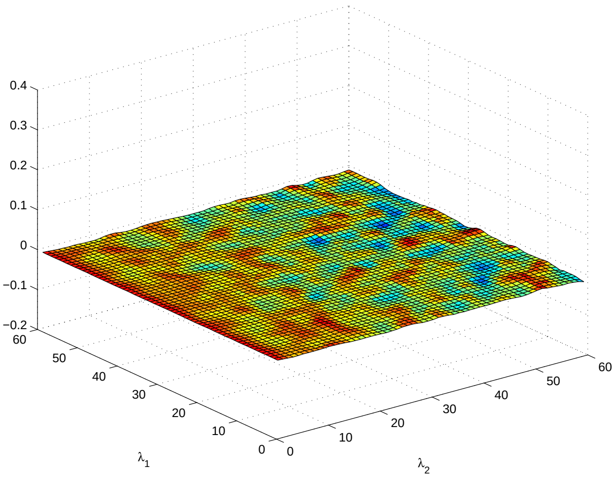


(c) MK V2

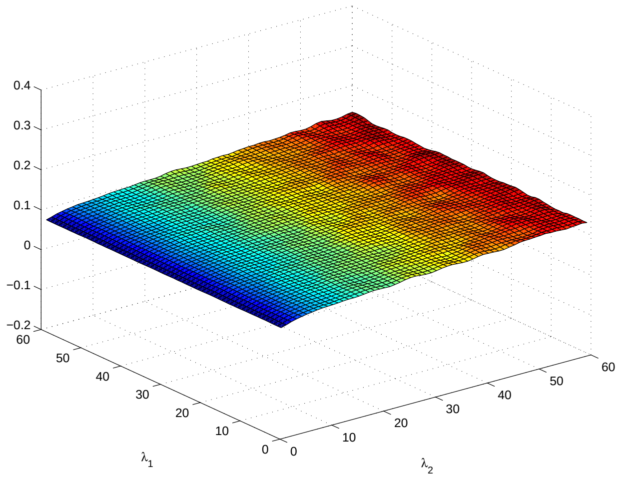


(d) FTRK V2

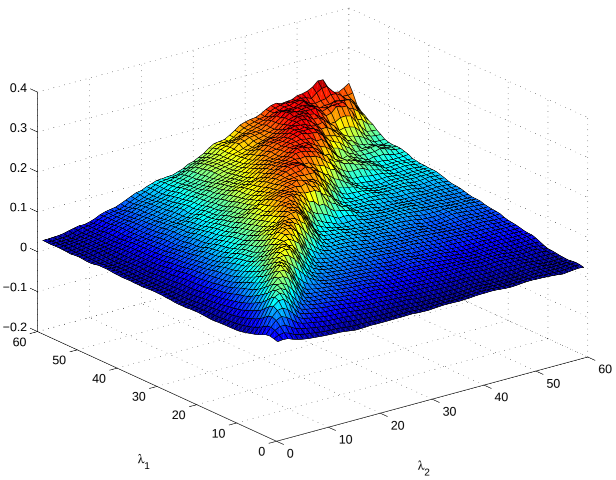
Graph B11: Noise Model 2 (AR(1)) - Variance of Process 2 (V2) - RMSE.



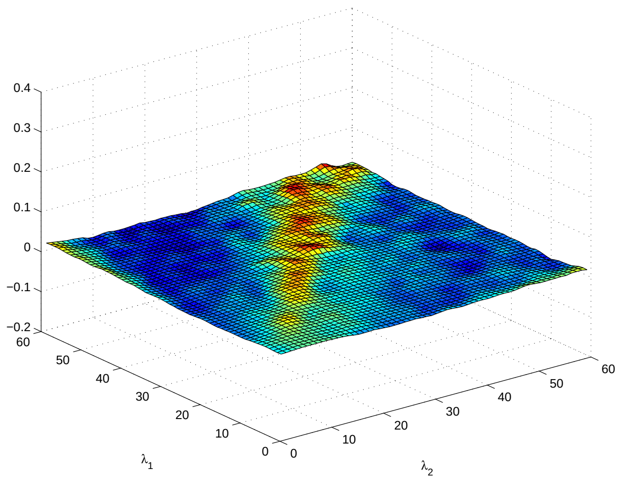
(a) OLS V2



(b) UK V2

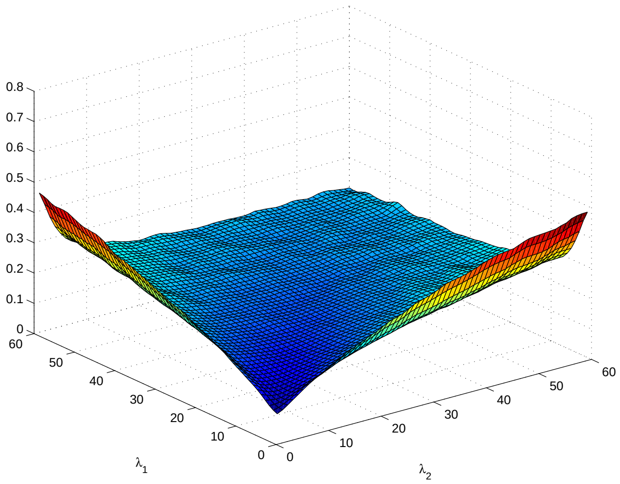


(c) MK V2

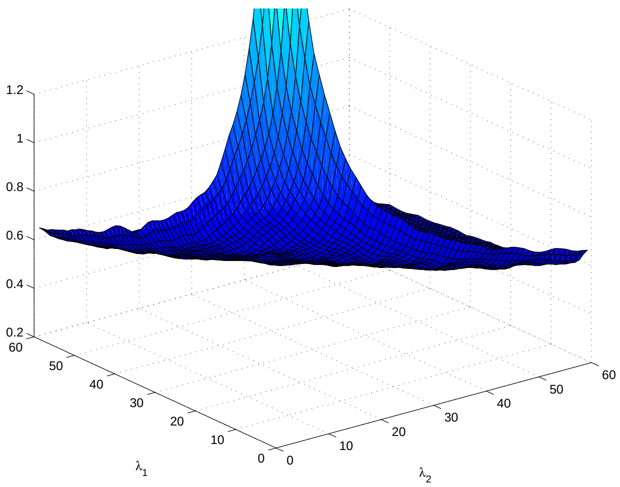


(d) FTRK V2

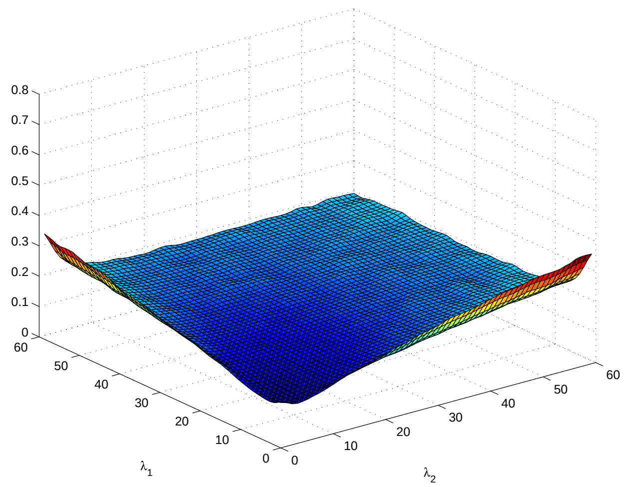
Graph B12: Noise Model 2 (AR(1)) - Variance of Process 2 (V2) - BIAS.



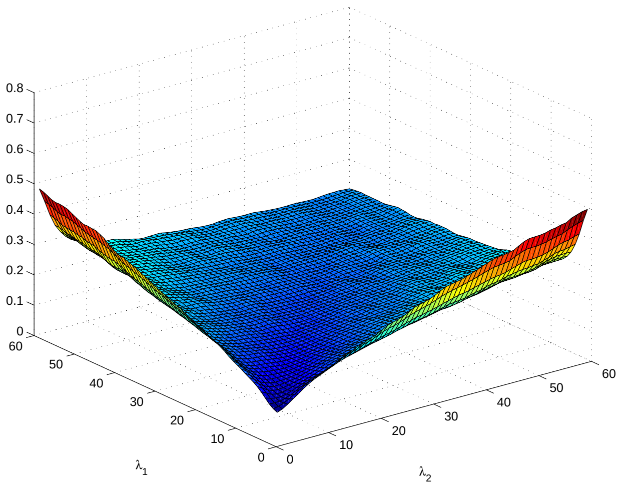
(a) OLS



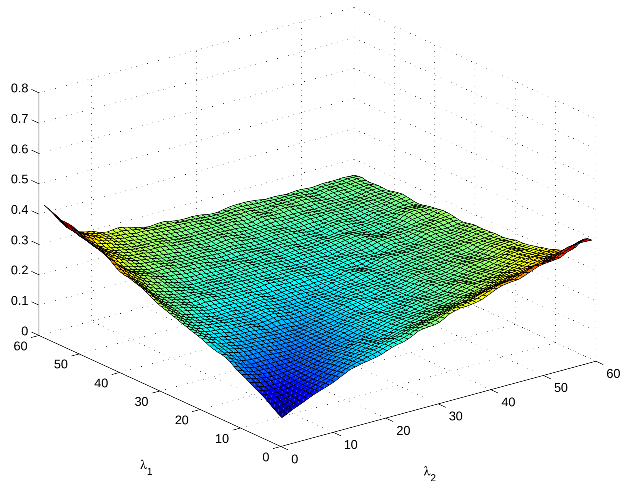
(b) HY V12



(c) HYS V12

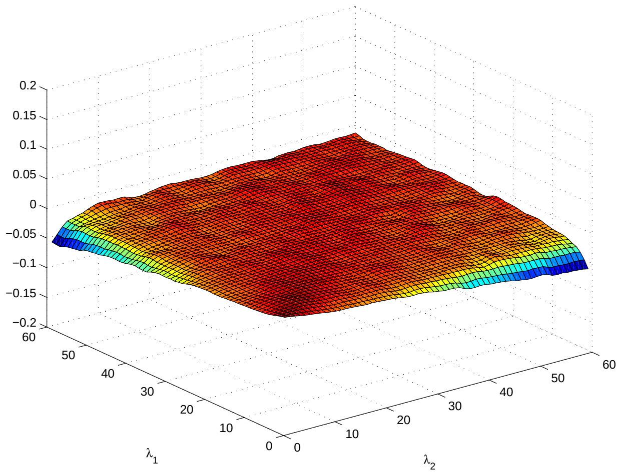


(d) MK V12

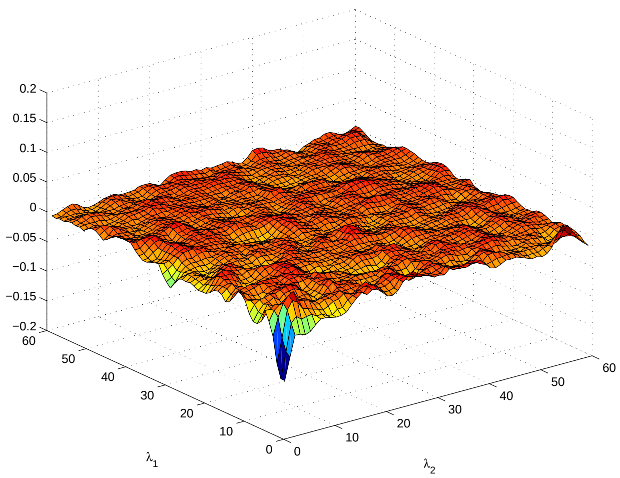


(e) FTRK V12

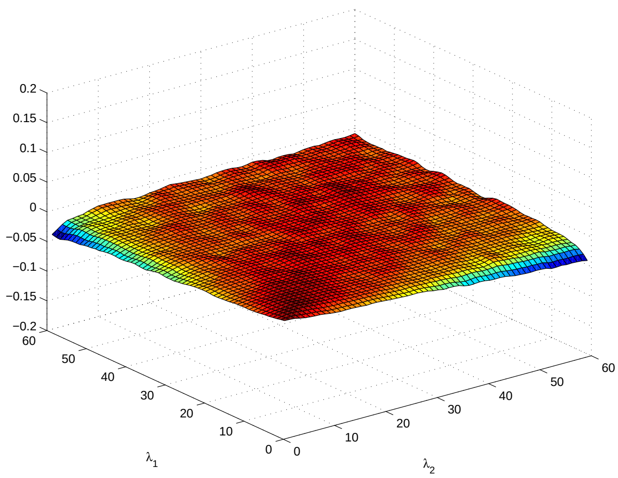
Graph B13: Noise Model 3 (MA(1)) - Covariance (V12) - RMSE.



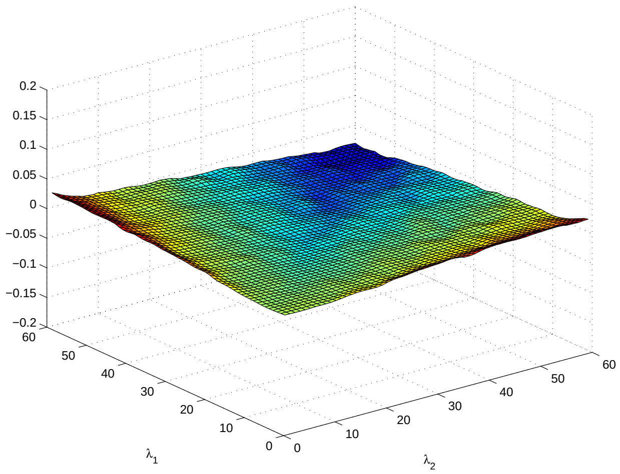
(a) OLS V12



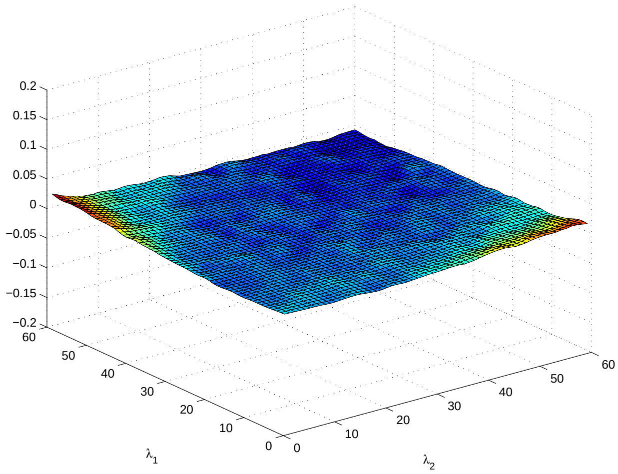
(b) HY V12



(c) HYS V12

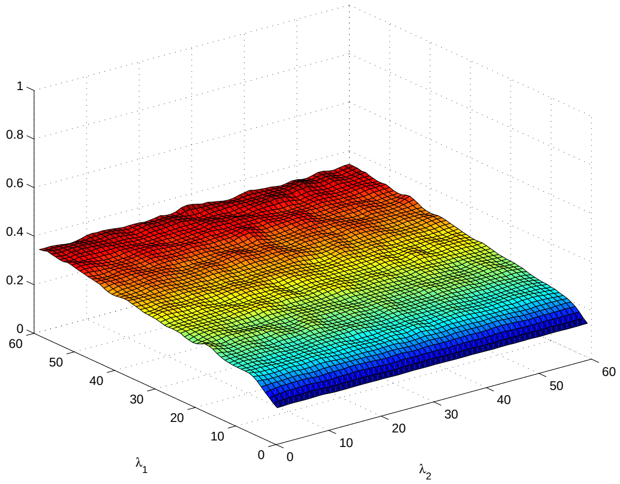


(d) MK V12

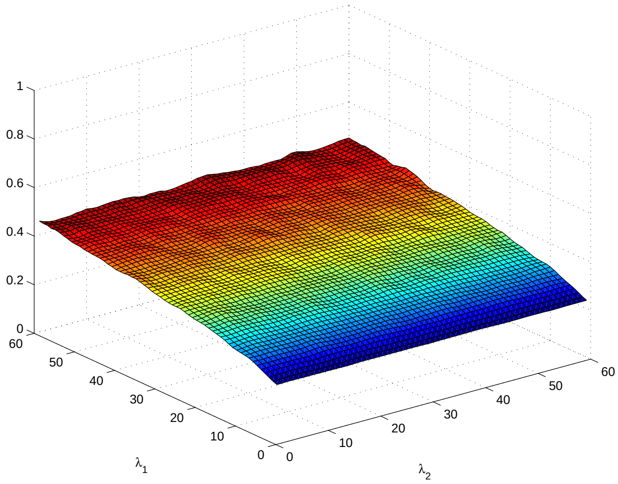


(e) FTRK V12

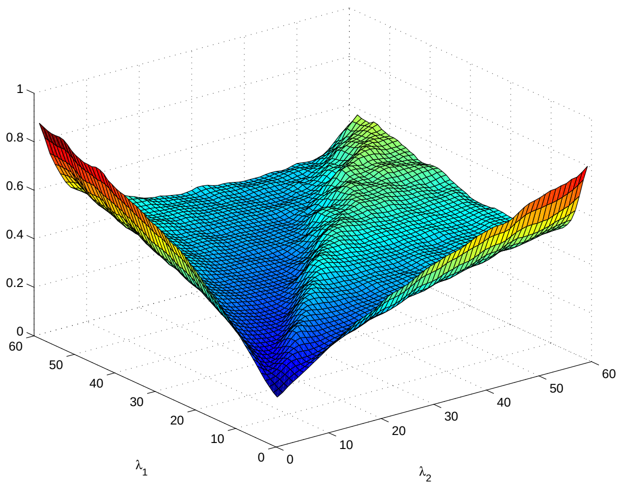
Graph B14: Noise Model 3 (MA(1)) - Covariance (V12) - BIAS.



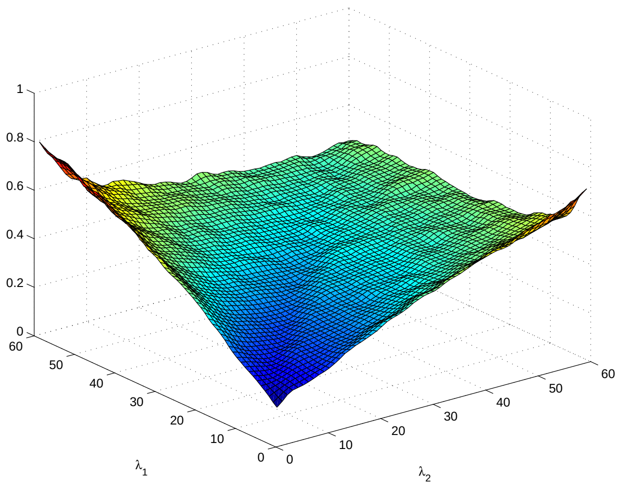
(a) OLS V1



(b) UK V1

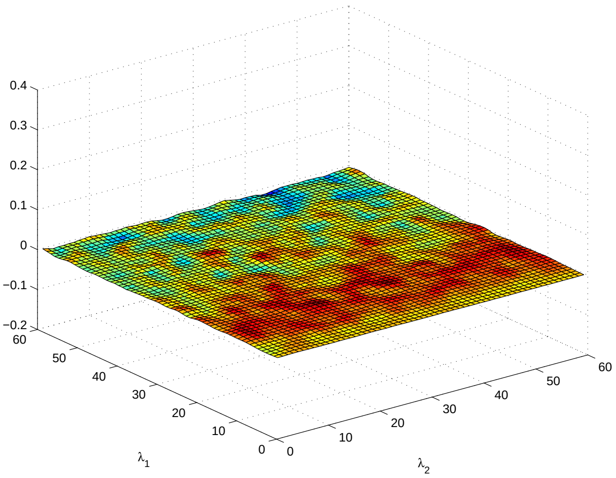


(c) MK V1

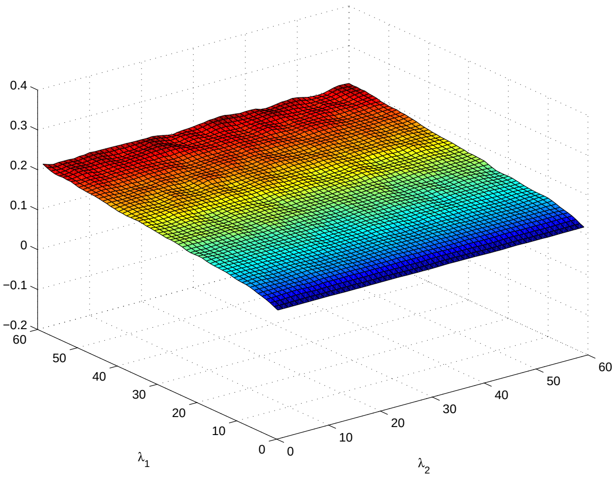


(d) FTRK V1

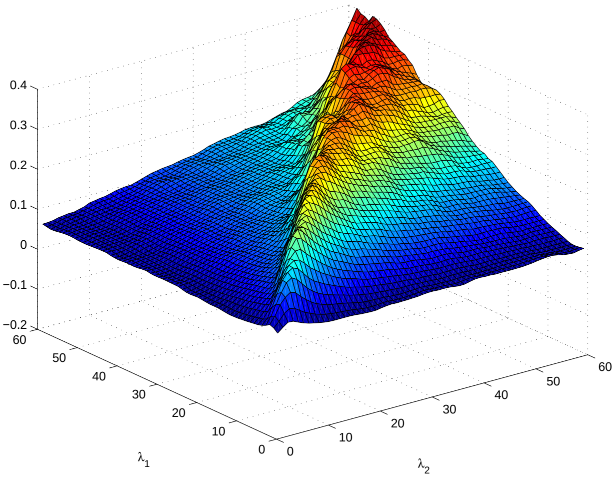
Graph B15: Noise Model 3 (MA(1)) - Variance of Process 1 (V1) - RMSE.



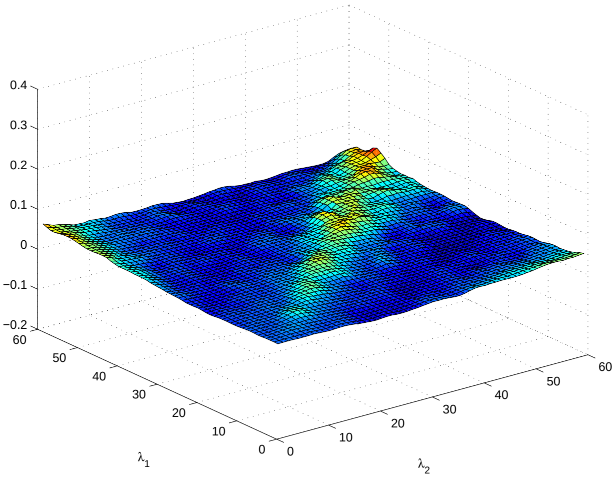
(a) OLS V1



(b) UK V1

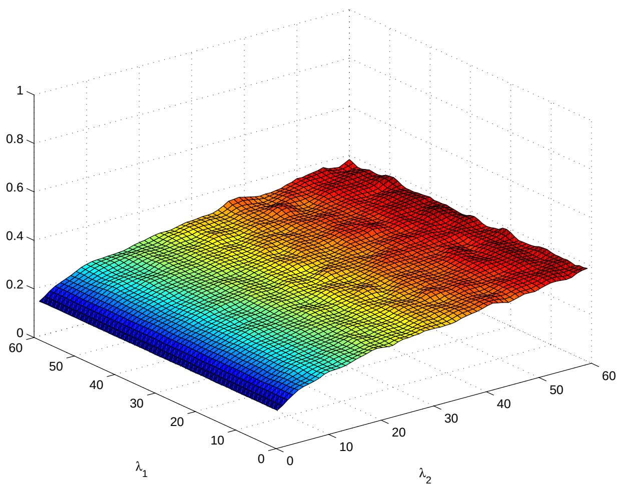


(c) MK V1

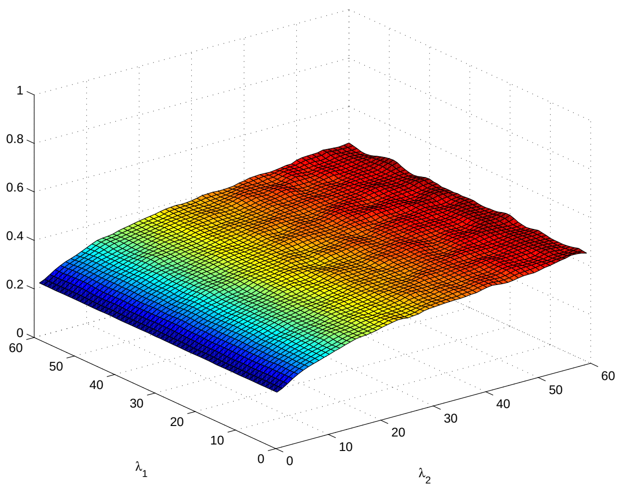


(d) FTRK V1

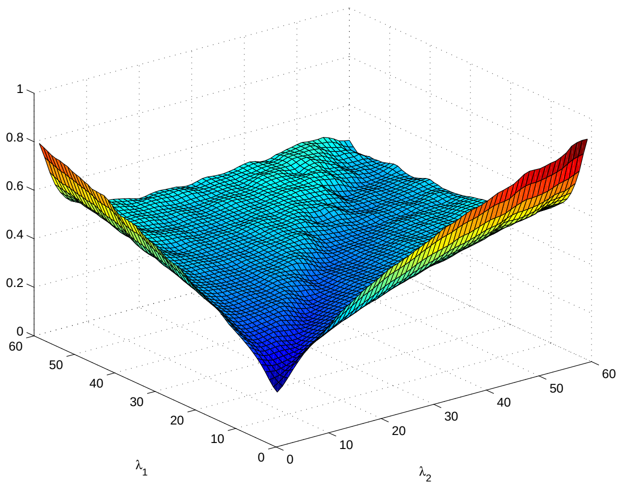
Graph B16: Noise Model 3 (MA(1)) - Variance of Process 1 (V1) - BIAS.



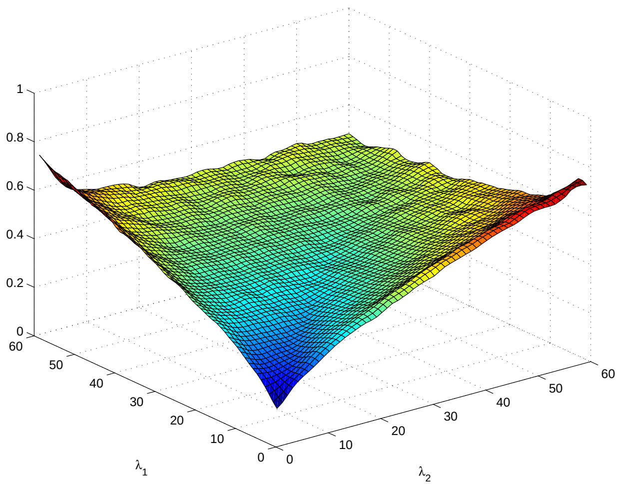
(a) OLS V2



(b) UK V2

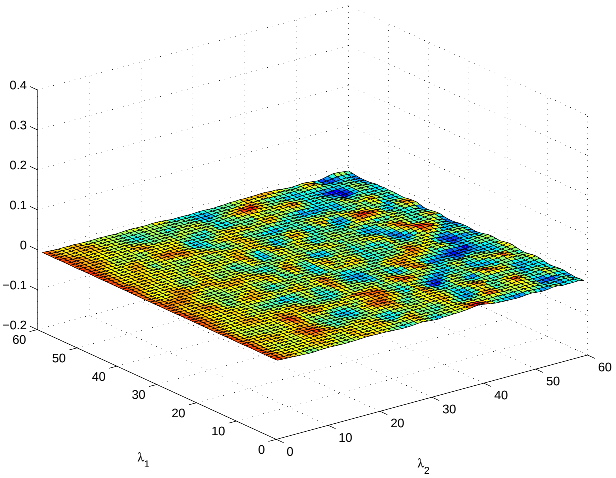


(c) MK V2

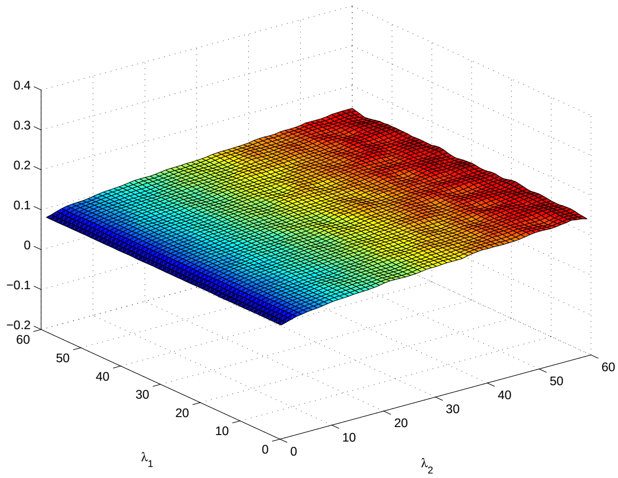


(d) FTRK V2

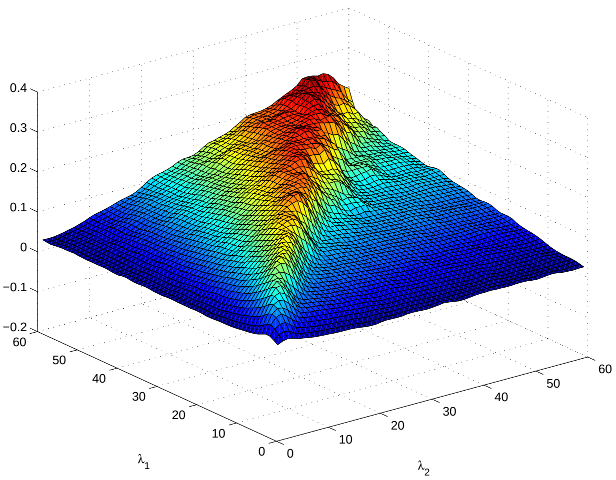
Graph B17: Noise Model 3 (MA(1)) - Variance of Process 2 (V12) - RMSE.



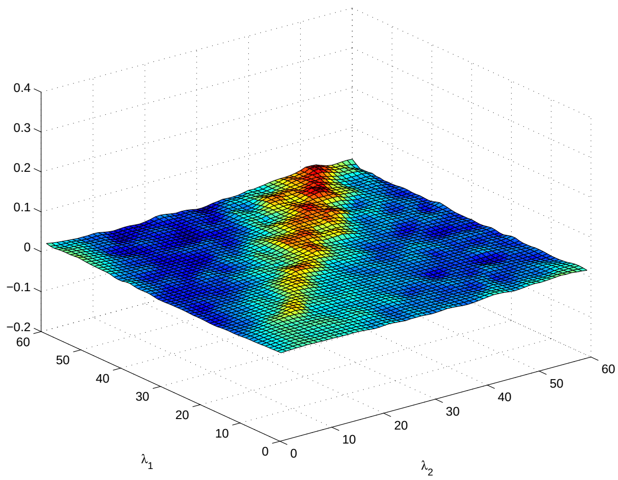
(a) OLS V2



(b) UK V2



(c) MK V2



(d) FTRK V2

Graph B18: Noise Model 3 (MA(1)) - Variance of Process 2 (V12) - BIAS.