Supplemental material

A Coefficients, gain and phase shift functions

Figure 1: Coefficients, gain and phase shift functions for the Linear-Constant (LC) filter with $I/C = 3.5$.

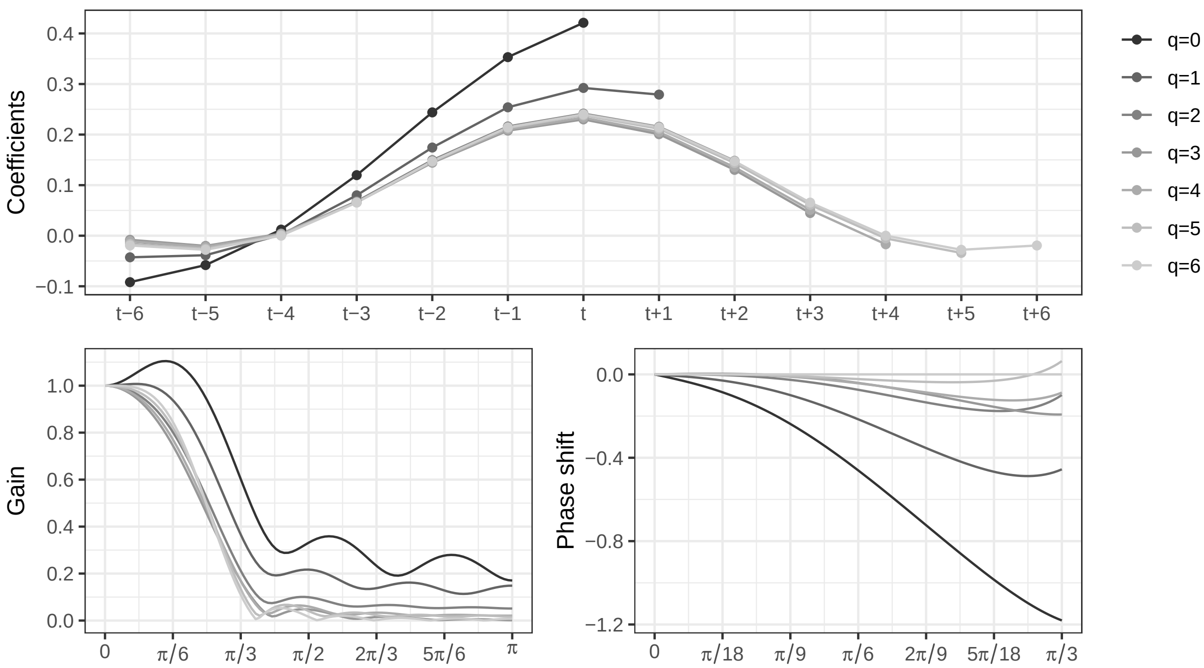


Figure 2: Coefficients, gain and phase shift functions for the Quadratic-Linear (QL) filter with $I/C = 3.5$.

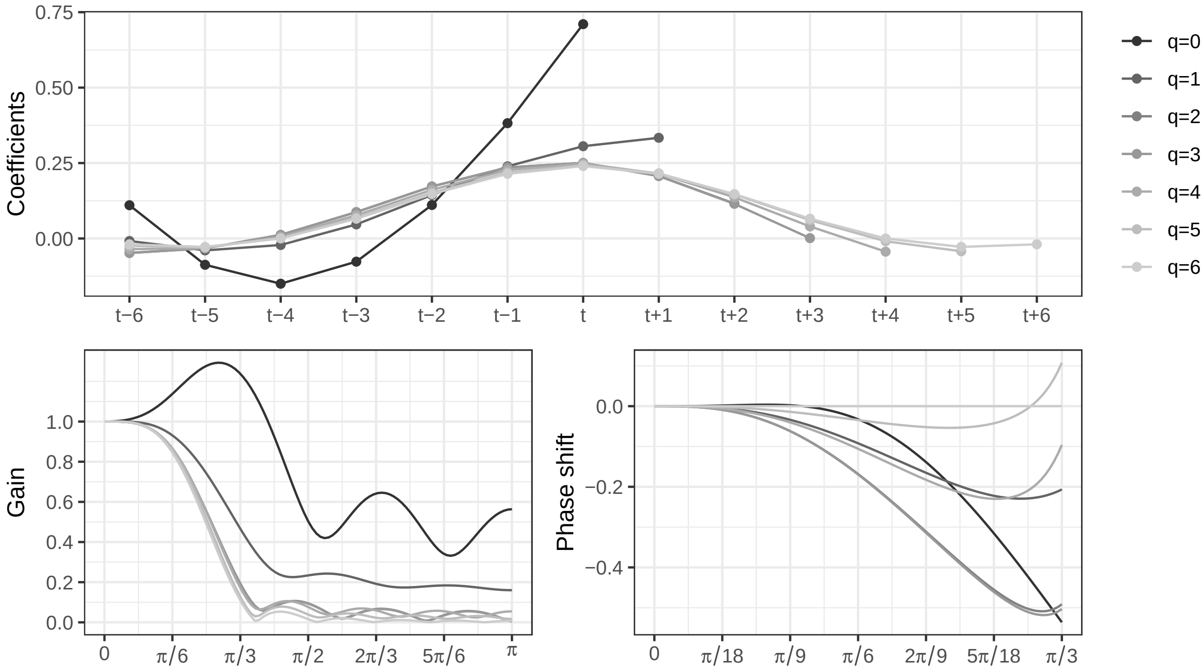


Figure 3: Coefficients, gain and phase shift functions for the Cubic-Quadratic (CQ) filter with $I/C = 3.5$.

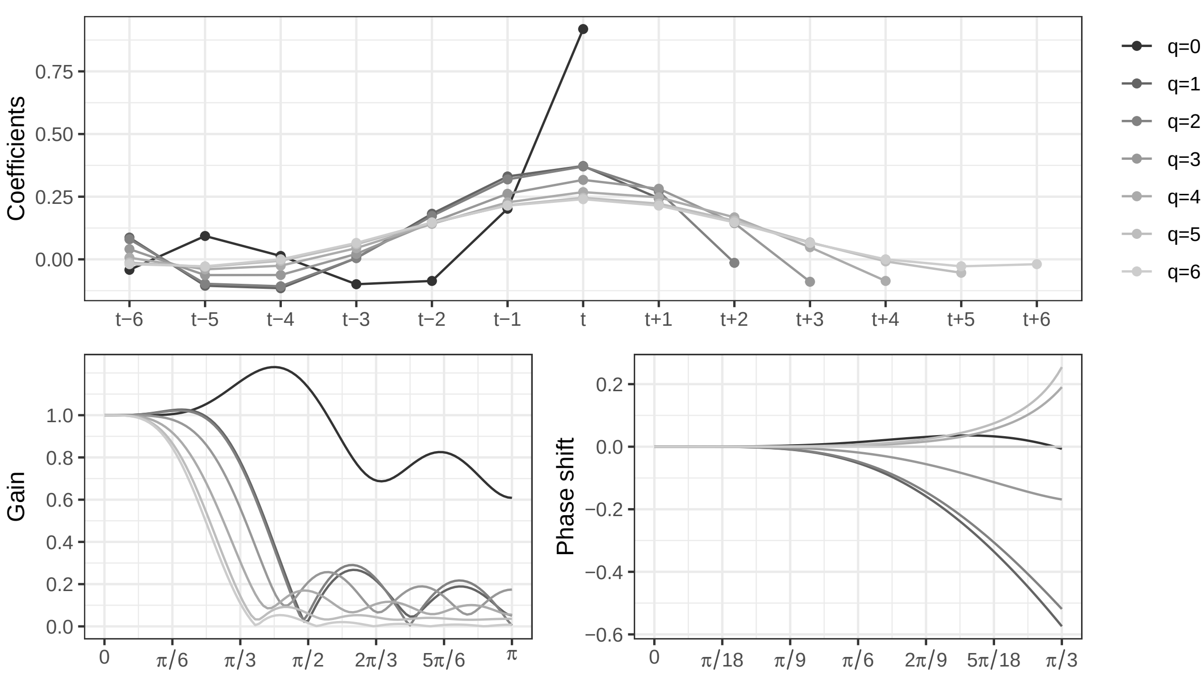
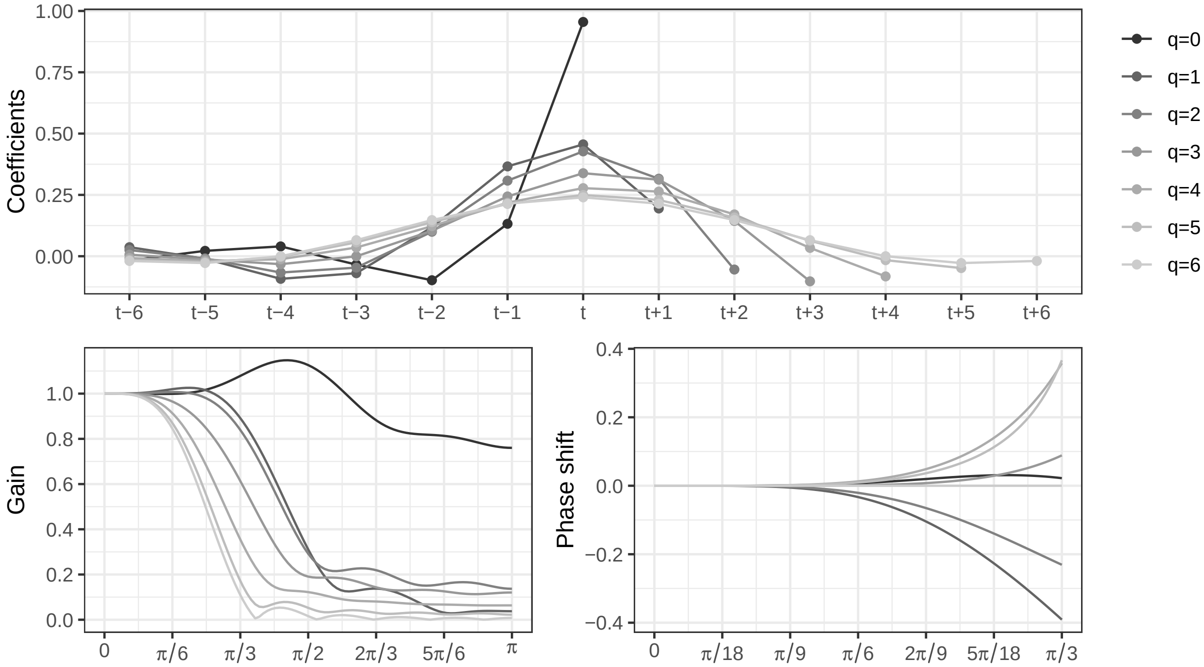


Figure 4: Coefficients, gain and phase shift functions for the direct asymmetric filter (DAF).



B Different specifications for the estimation of the slope and concavity

Figure 5: Distribution of phase shift associated to the local parametrisation of the linear-constant (LC) filter using the final estimates of δ/σ, by the bandwidth h of the henderson filter used to estimate σ and the degree d of the trend to estimate δ.

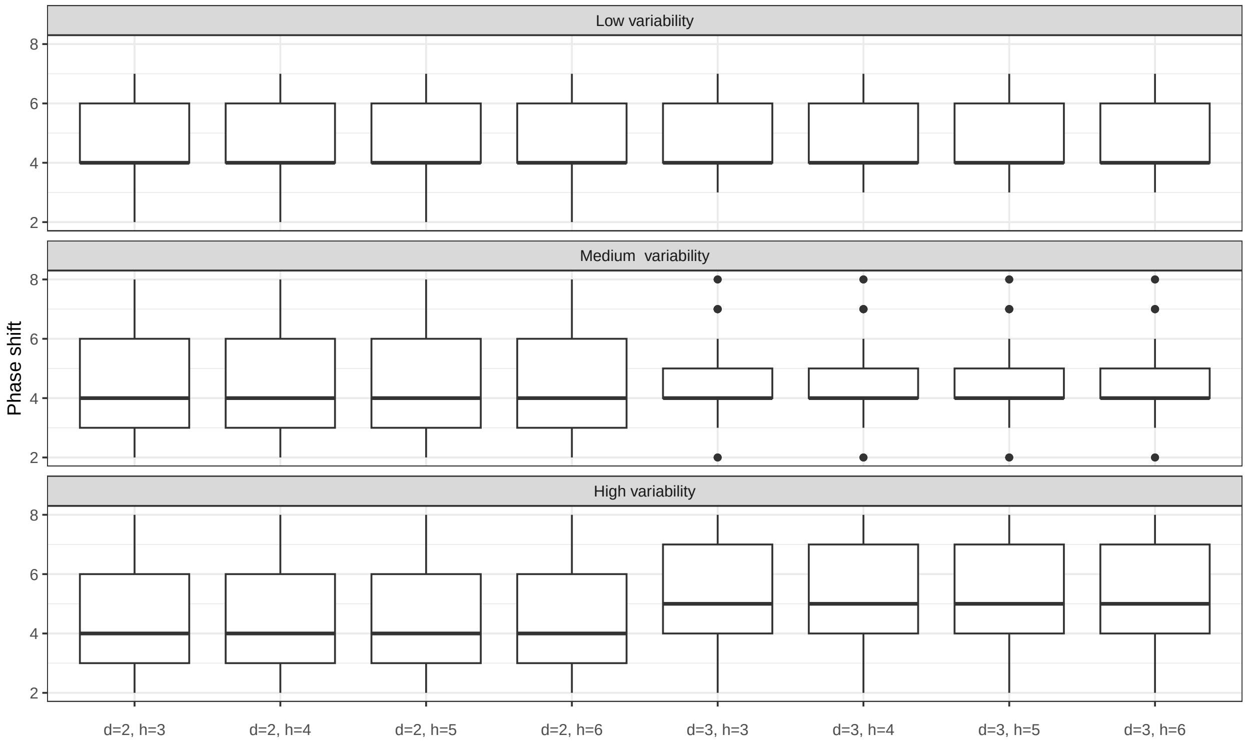


Figure 6: Distribution of phase shift associated to the local parametrisation of the linear-constant (LC) filter using the final estimates of δ/σ, by the bandwidth h of the henderson filter used to estimate σ and the degree d of the trend to estimate δ.

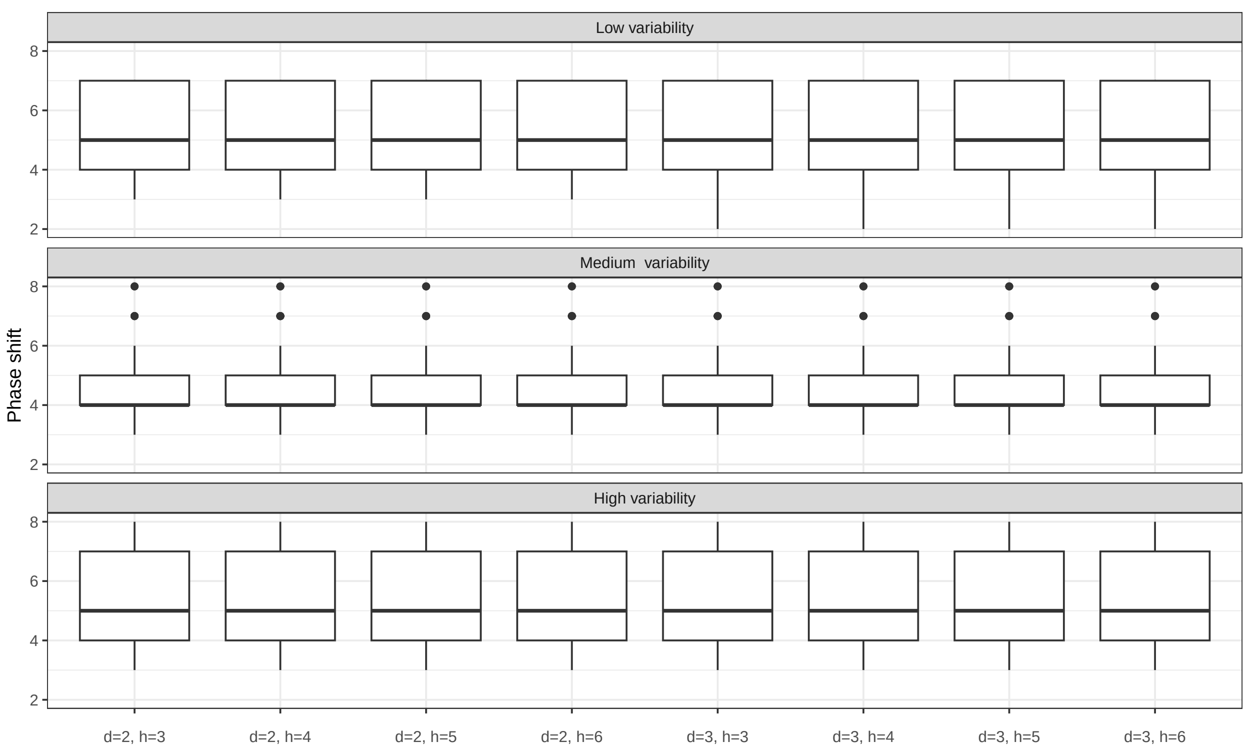


Figure 7: Distribution of phase shift associated to the local parametrisation of the quadratic-linear (QL) filter using real-time estimates of δ/σ, by the bandwidth h of the henderson filter used to estimate σ and the degree d of the trend to estimate δ.

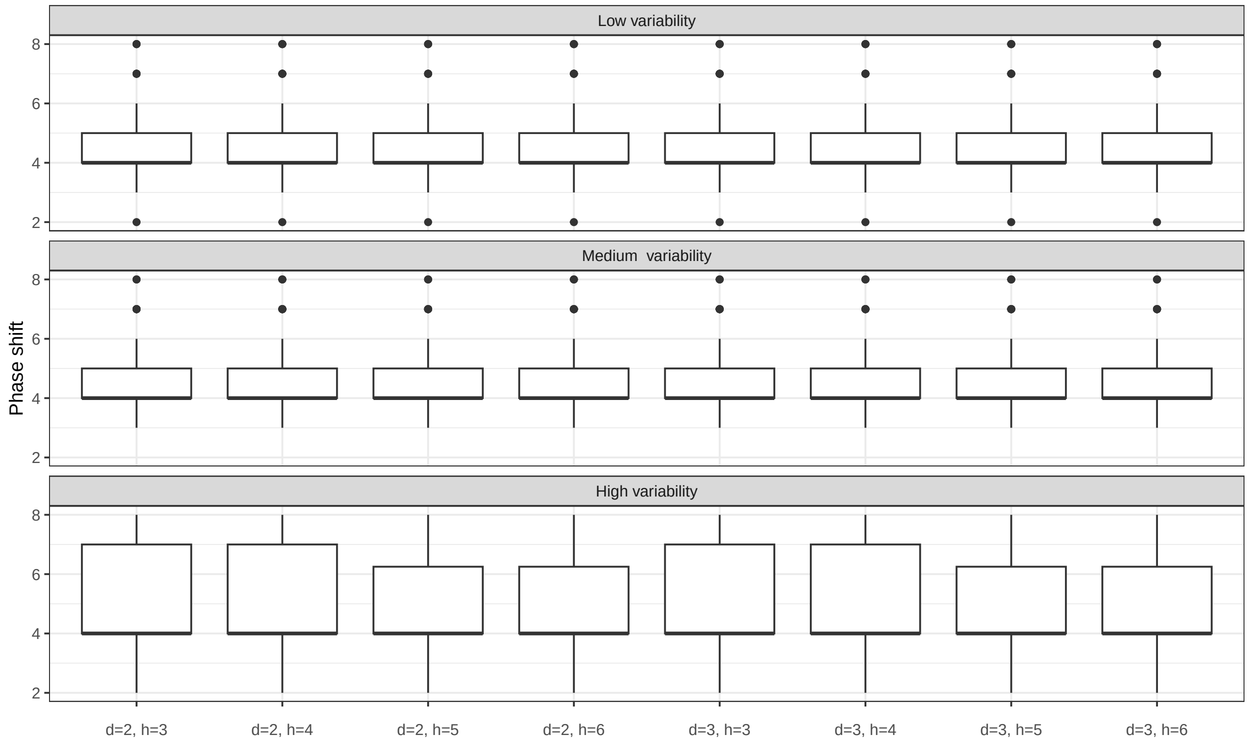
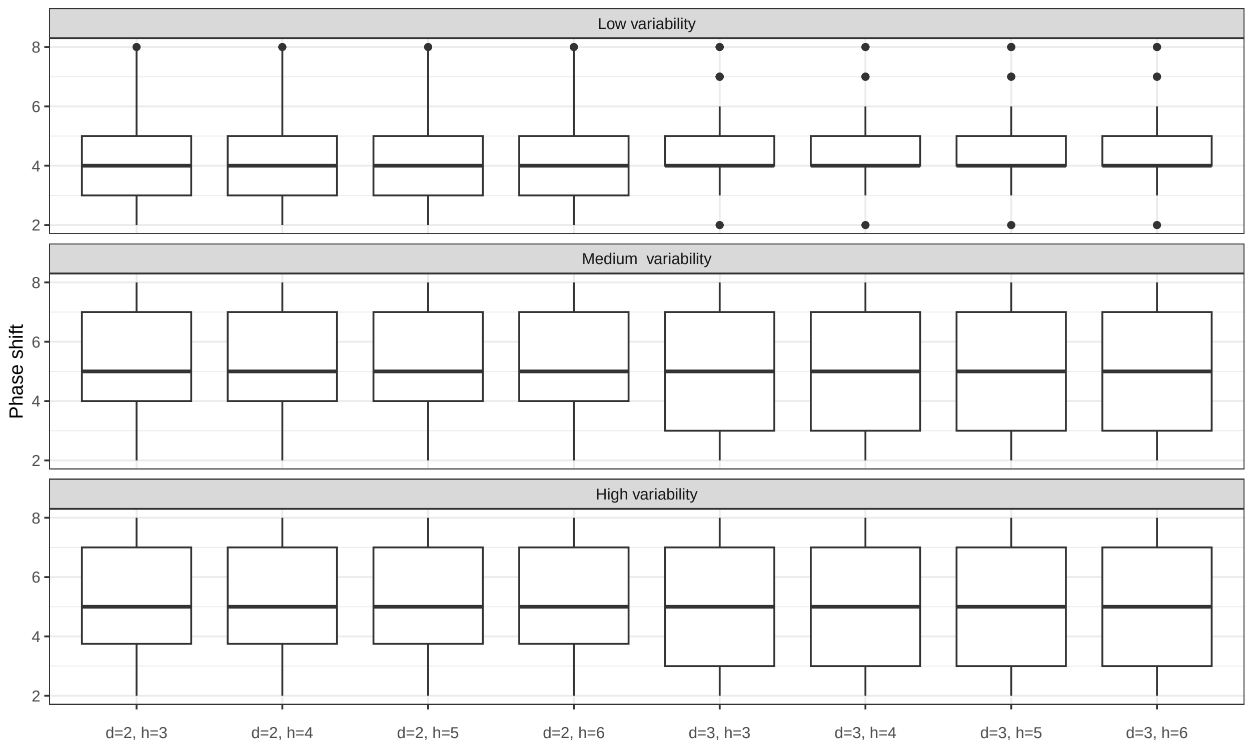
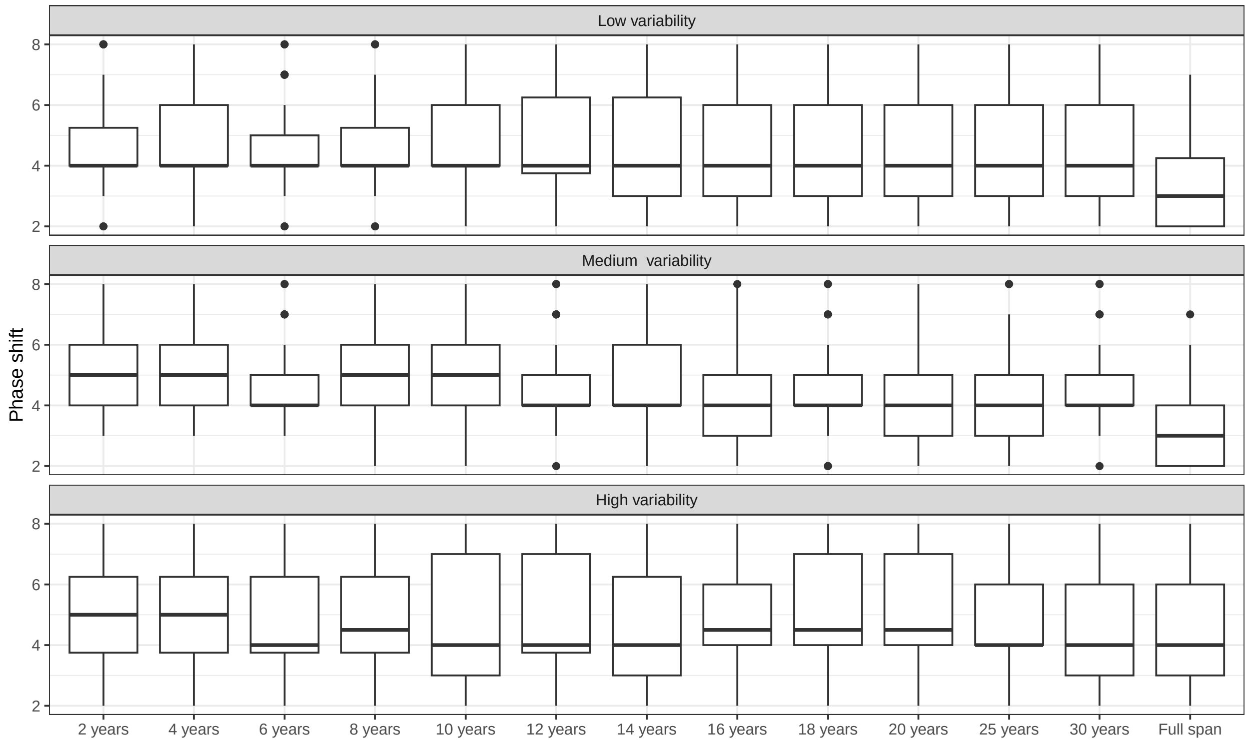


Figure 8: Distribution of phase shift associated to the local parametrisation of the quadratic-linear (QL) filter using real-time estimates of δ/σ, by the bandwidth h of the henderson filter used to estimate σ and the degree d of the trend to estimate δ.



C Impact of the span used to detect the ARIMA model

Figure 9: Distribution of phase shift on simulated series by number of years used to identify and estimate the ARIMA model.



D Nearest neighbour bandwidth

Figure 10: Coefficients, gain and phase shift functions for the Linear-Constant (LC) filter with $I/C = 3.5$ and a nearest neighbour bandwidth.

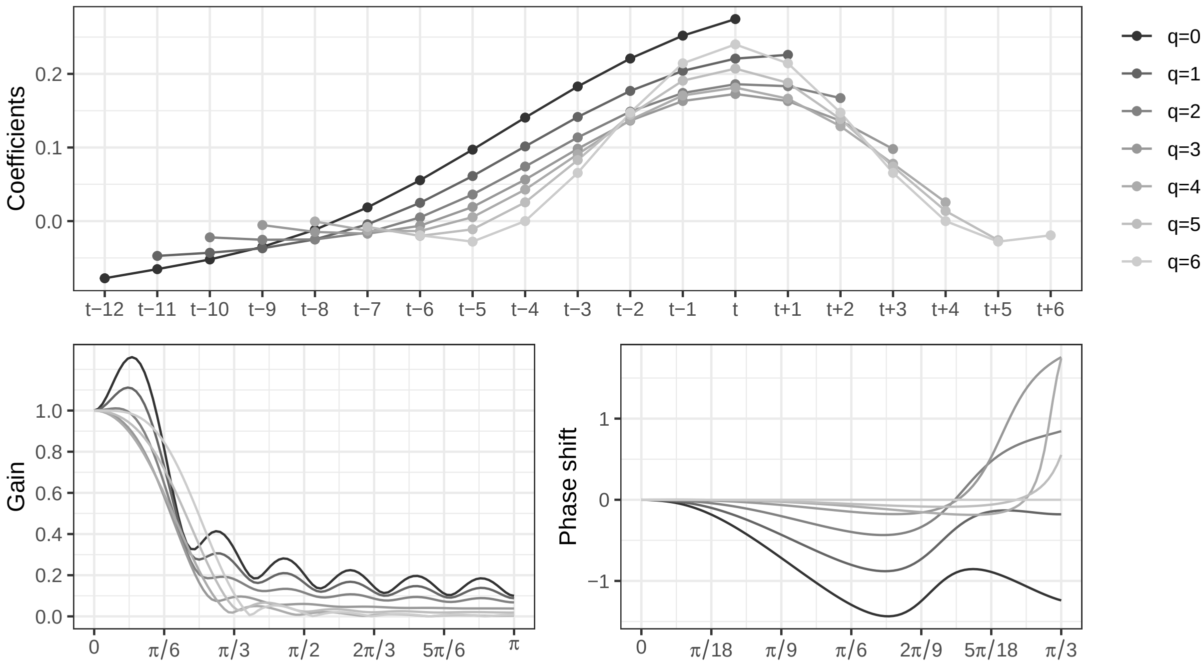


Figure 11: Coefficients, gain and phase shift functions for the Quadratic-Linear (QL) filter with $I/C = 3.5$ and a nearest neighbour bandwidth.

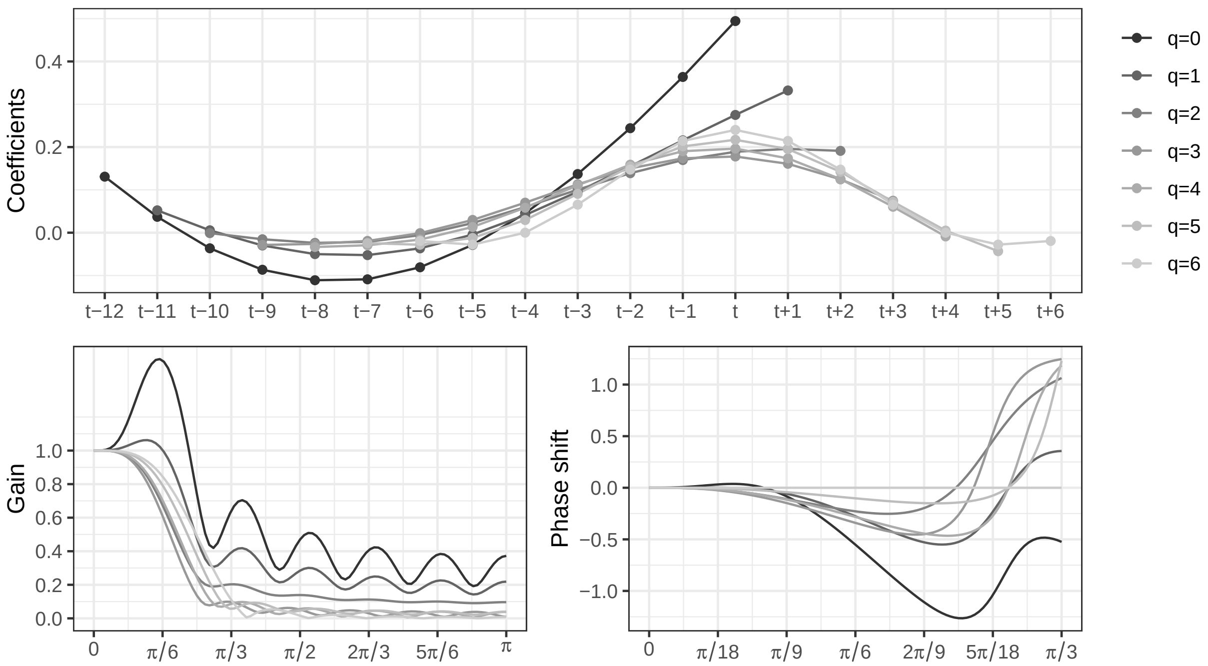


Figure 12: Coefficients, gain and phase shift functions for the Cubic-Quadratic (CQ) filter with $I/C = 3.5$ and a nearest neighbour bandwidth.

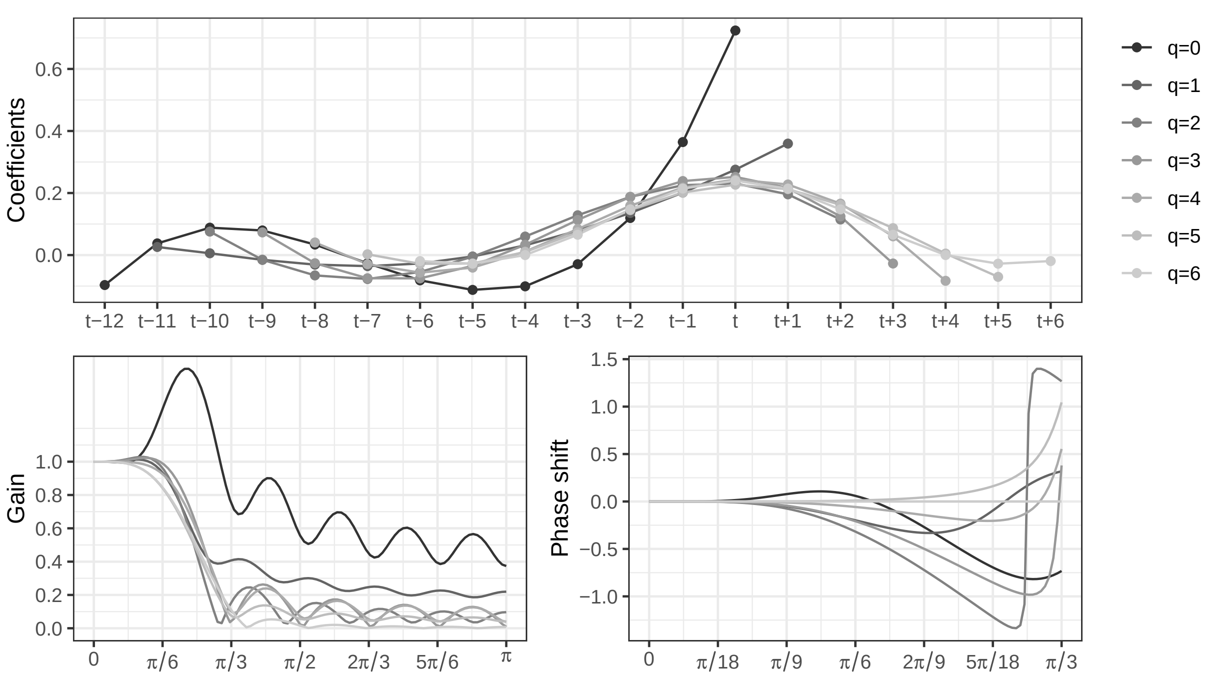


Figure 13: Coefficients, gain and phase shift functions for the direct asymmetric filter (DAF) with a nearest neighbour bandwidth.

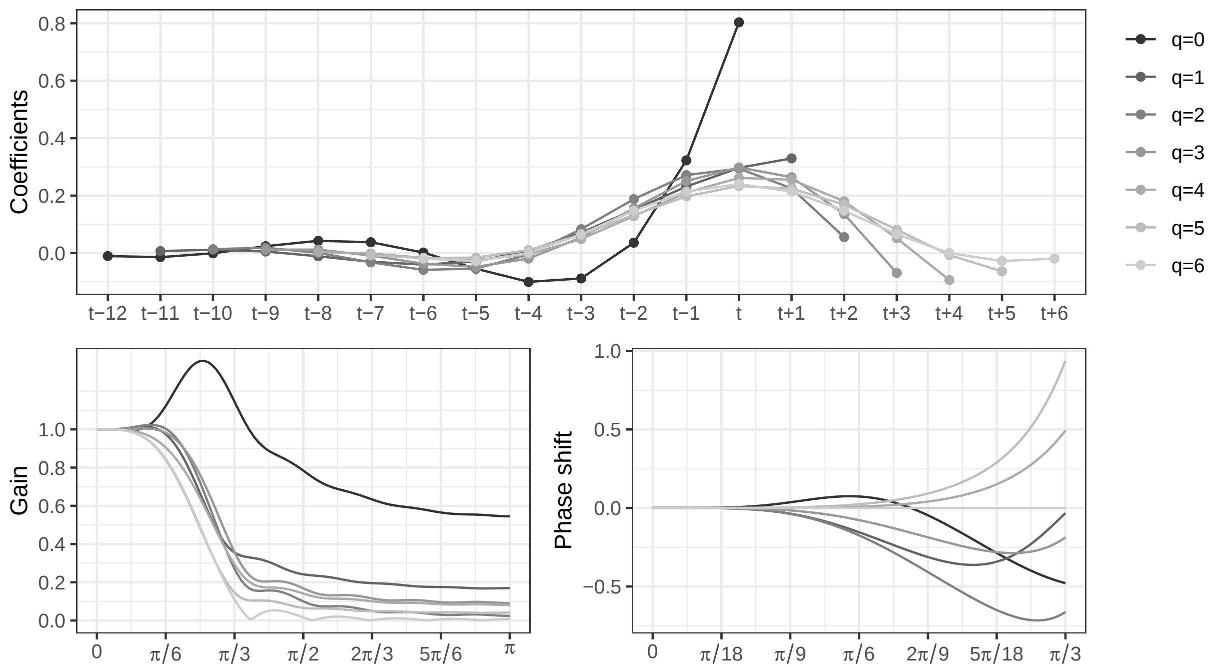


Figure 14: Distribution of phase shift using nearest neighbour bandwidth.

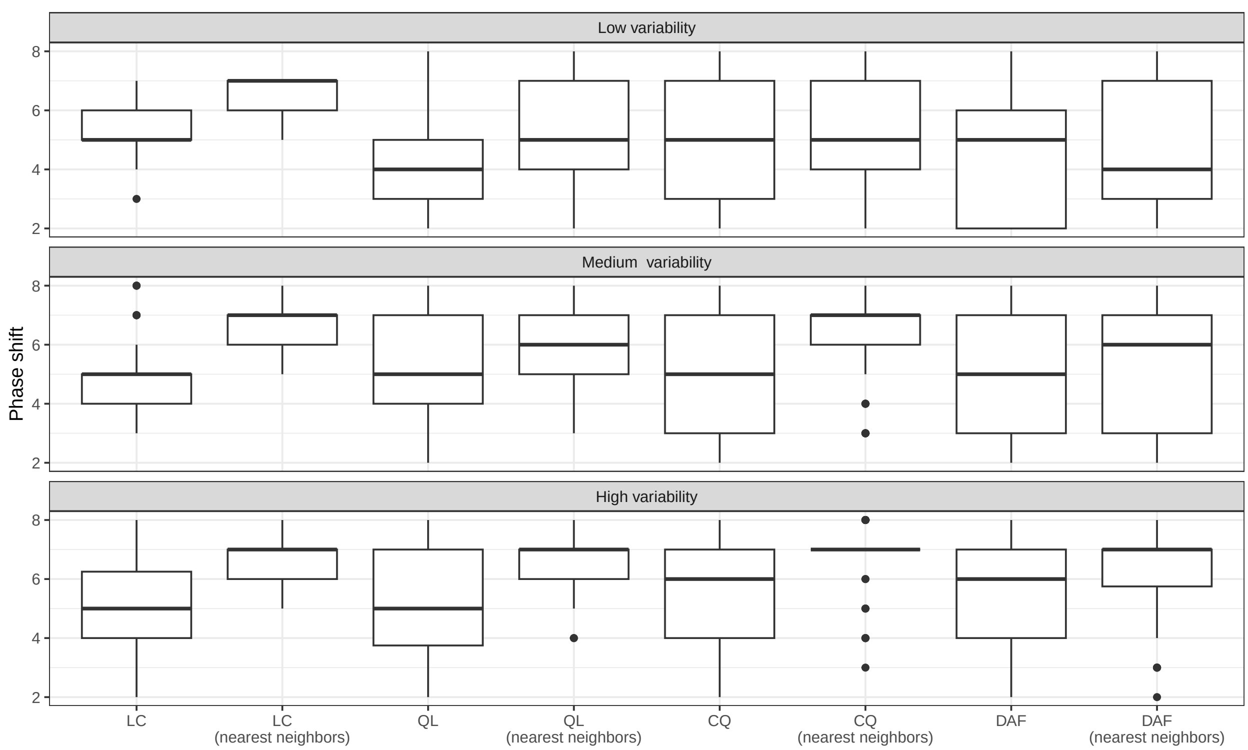
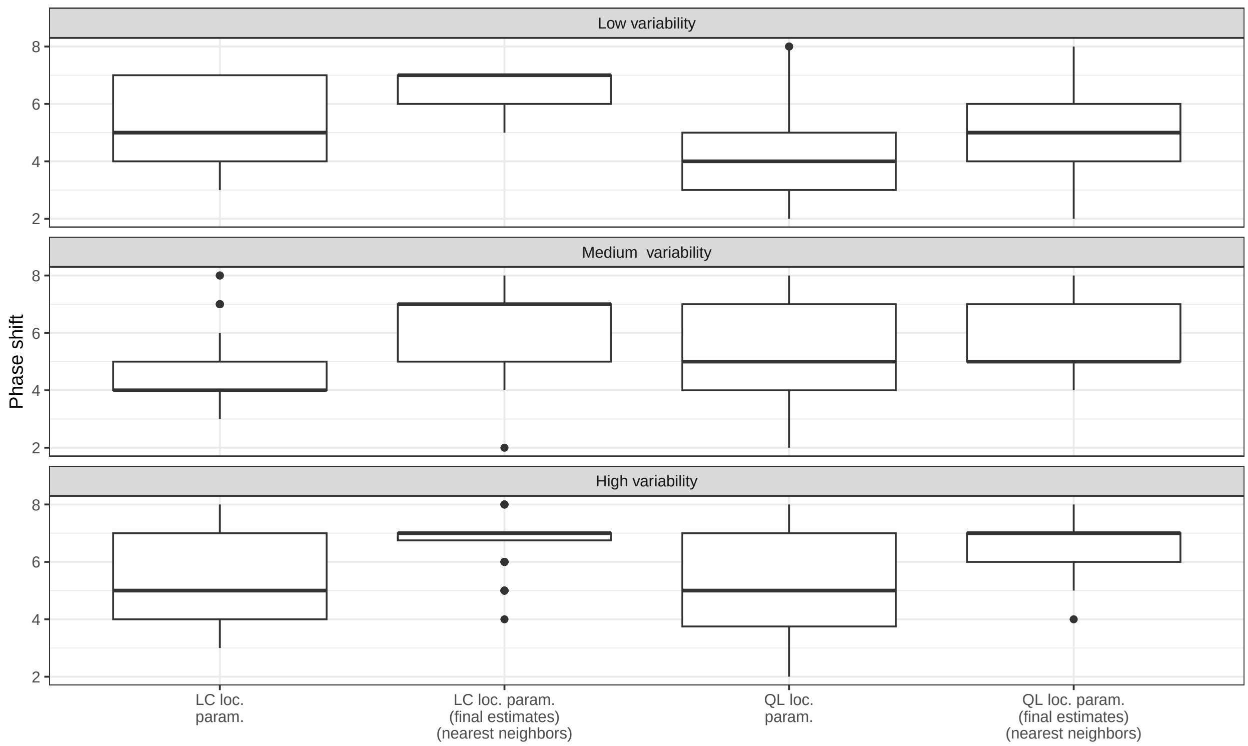


Figure 15: Distribution of phase shift using nearest neighbour bandwidth for polynomial filters with local parametrisation.



Note: nearest bandwidth moving average are used to estimate slope and concavity. We thus do not distinguish local parametrisation and final local parametrisation which asumptions might not be plausible. Indeed, using the same framework as for fixed bandwidth, the final local parametrisation for real-time estimates would implie modelling a polynomial of degree 2 or 3 other 25 months (which doesn't seem plausible).

E Quarterly data

Figure 16: Distribution of phase shift on quarterly data.

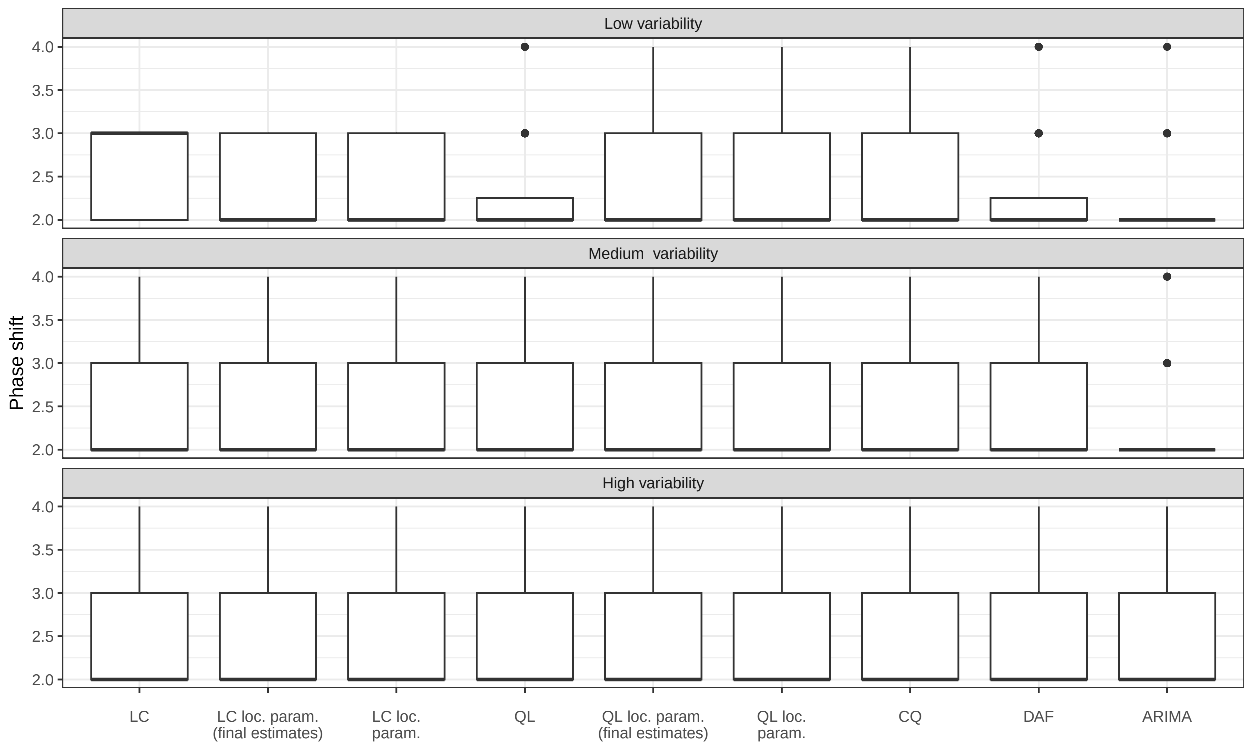


Table 1: Average of the relative deviations of the revisions for the different filters on simulated quarterly series with medium variability.

Method	$q = 0$	$q = 1$
$MAE_{fe}(q) = \mathbb{E}\left[\left\|(TC_{t\|t+q} - TC_{t\|last})/TC_{t\|last}\right\|\right]$		
LC	0.76	0.11
LC local param. (final estimates)	0.73	0.11
LC local param.	0.71	0.12
QL	0.93	0.46
QL local param. (final estimates)	0.58	0.12
QL local param.	0.97	0.33
CQ	1.15	1.02
DAF	1.15	0.43
ARIMA	0.49	0.26
$MAE_{ce}(q) = \mathbb{E}\left[\left\|(TC_{t\|t+q} - TC_{t\|t+q+1})/TC_{t\|t+q+1}\right\|\right]$		
LC	0.36	0.11
LC local param. (final estimates)	0.32	0.11
LC local param.	0.34	0.12
QL	1.75	0.46
QL local param. (final estimates)	0.23	0.12
QL local param.	0.40	0.33
CQ	0.07	1.02
DAF	0.75	0.43
ARIMA	0.27	0.26