

Popular choices of scores:

- Mallows's C_p : $\text{RSS} + 2\hat{\sigma}_{\text{full}}^2 \times p$ ^a
- AIC: $-2\log\text{lik} + 2p$ ^b
- BIC: $-2\log\text{lik} + (\log n)p$

Note that when n is large, adding an additional predictor costs a lot more in BIC than AIC. So AIC tends to pick a bigger model than BIC. C_p performs similar to AIC.

^a $\hat{\sigma}^2$ is estimated from the full model (i.e., the model with all the predictors).

^bIn the context of linear regression with normal errors, we can replace $-2\log\text{lik}$ by $\log\text{RSS}$.