

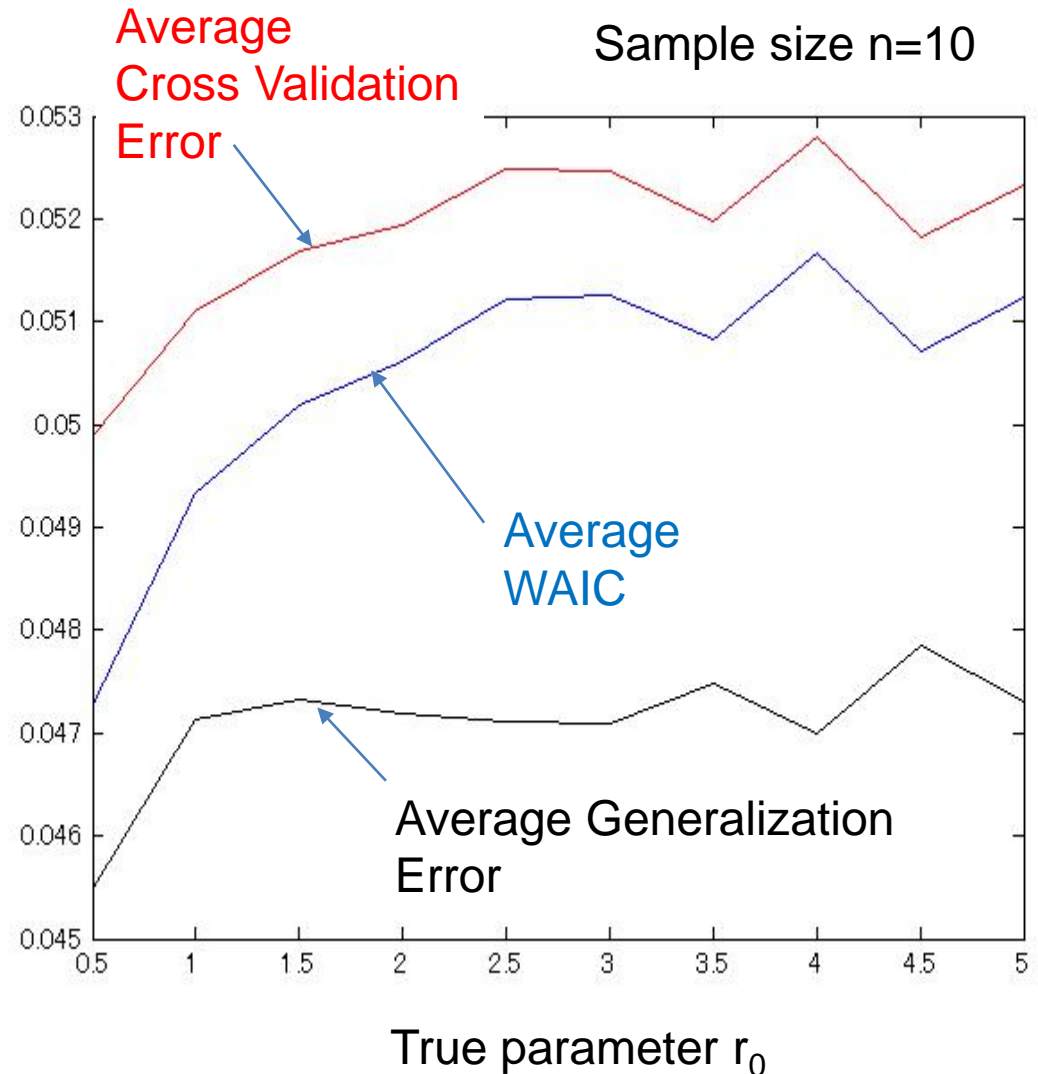
Cross Validation and WAIC in Poisson Distribution

Generalization error,
Cross Validation error,
and WAIC are compared for
Poisson Distribution.

Model: $p(x|r) = r^x \exp(-r) / x!$
Prior : $\exp(-r/100)/100$
True : $p(x|r_0)$

For $r_0 = 0.5, 1, 1.5, \dots, 5$,
Sample size $n=10$
50000 sets of samples are
used for averaging.
Posterior averages are
given by analytic calculation.

Conclusion: WAIC is the
better estimator of
the generalization error
than cross validation.



Case n=5

Case Sample size n=5

Note: The difference between cross validation error and WAIC is smaller than their fluctuations. Hence in order to compare them, averages should be calculated by using quite many sets of samples.

