Efron : Efron's 1D local fdr Method

Efron's FDR is also called Lfdr (Local FDR), and unlike the Benjamini-Hochberg method, FDR was estimated through a Bayesian approach.

Available data types

- t statistics
- z statistics
- raw data

Parameters to use

- group indices
- Inference type of f
- Poisson DF
- Bins of histogram
- Use truncated data(this is optional)
- Null(f0) type

Brief description

- Mixture distribution

$$f(z) = p_0 f_0(z) \ + \ (1 \ - p_0) f_1(z)$$

where f is the distribution of the whole, f0 is the distribution of null, f1 is the distribution of alternatives, and p0 is the ratio of f to f0.

- Zero Assumption

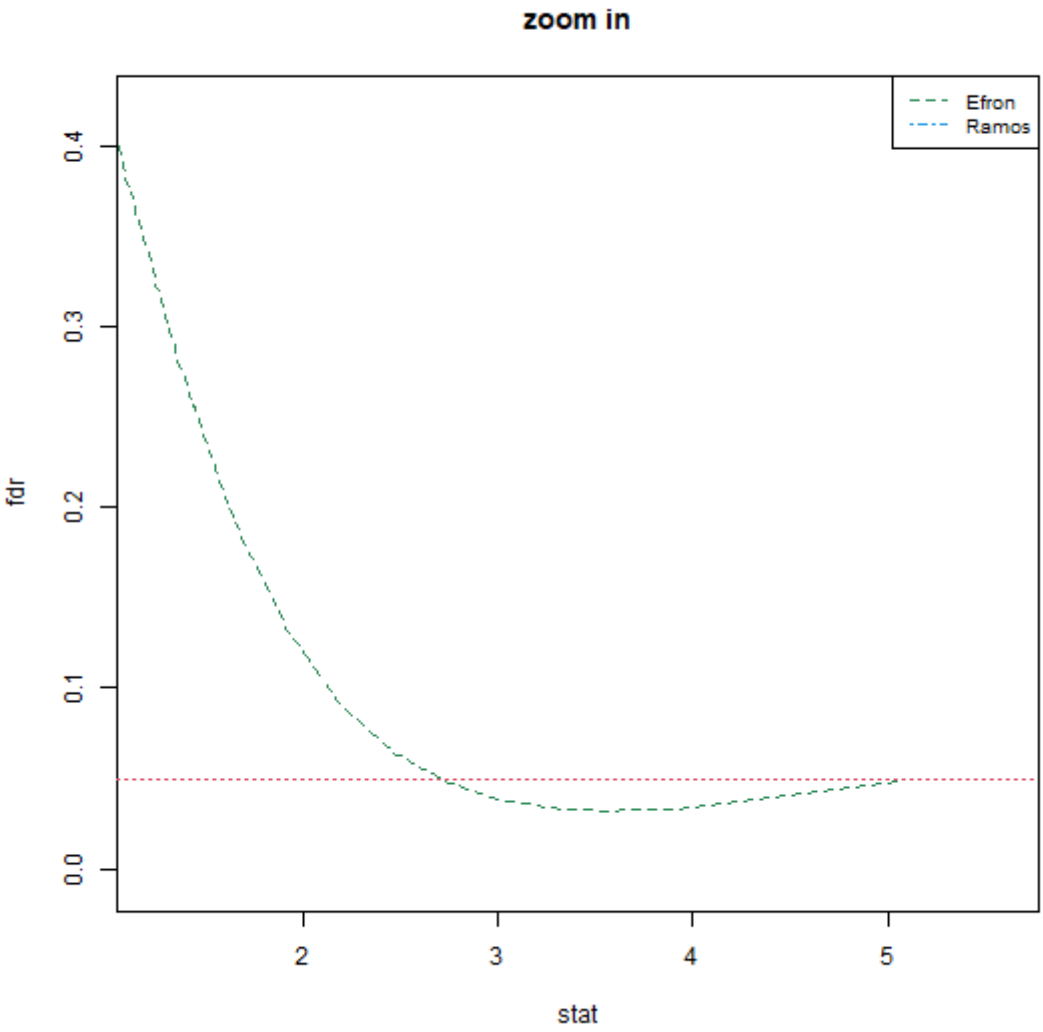
$$f(z) = p_0 f_0(z) \ for \ z \in [c_1, c_2]$$

where c1 and c2 correspond to the zero assumption region.

- Efron's local fdr

$$fdr(z) = \frac{p_0 f_0(z)}{f(z)}$$

Example



The above case is a plot of efron's local fdr when the q-value is 0.05. Reject any lower than 0.05.

Precautions for use

Problems may arise differently depending on the **type of data**.
If your data is too concentrated in one place, you may need to limit the area.
If the data are not normally distributed, it is necessary to change the method of estimating f0.
There may be many other cases.