

LISST Parameter Estimation Comparison

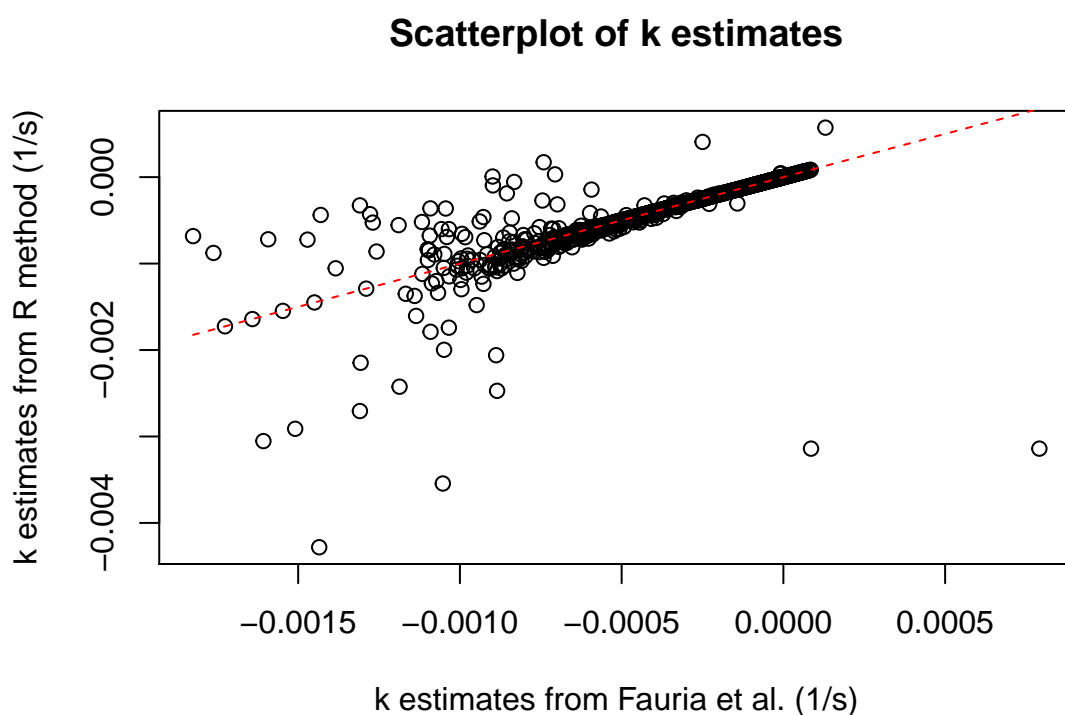
Justin Nghiem

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Goal: To compare estimation methods of k between that used in Fauria et al. and the routine derived in R

Measures of correlation

Below is the scatterplot of estimates. The dotted red line is the line $y = x$.



Pearson correlation (linear)

```
## [1] 0.8031061
```

Spearman correlation (monotone)

```
## [1] 0.9664089
```

Wilcoxon signed-rank test

- H_0 : The difference between means is 0.
- H_1 : The difference between means is not 0.

```
##
## Wilcoxon signed rank test with continuity correction
##
## data: k_fauria[, 2] and k_fauria_R[, 2]
## V = 548250, p-value < 2.2e-16
## alternative hypothesis: true location shift is not equal to 0
```

Wilcoxon rank-sum test

- H_0 : The samples are drawn from identical distributions.
- H_1 : The samples are not drawn from identical distributions.

Using samples pooled across runs:

```
##
## Wilcoxon rank sum test with continuity correction
##
## data: k_fauria[, 2] and k_fauria_R[, 2]
## W = 813000, p-value = 0.7403
## alternative hypothesis: true location shift is not equal to 0
```

Using samples by run:

- A correction for multiple testing has been applied according to the Benjamini-Hochberg procedure.

```
##      10a      10b      11a      11b      12a      12b      6c      7a
## 0.740279 0.740279 0.740279 0.740279 0.740279 0.740279 0.740279 0.740279
##      7b      7c      13a      13b      14a      14b      15a      15b
## 0.740279 0.740279 0.740279 0.740279 0.740279 0.740279 0.740279 0.740279
##      16a      16b      17a      17b      18a      18b      19a      19b
## 0.740279 0.740279 0.740279 0.740279 0.740279 0.740279 0.740279 0.740279
##      20a      20b      21a      21b      22a      22b      23a      23b
## 0.740279 0.740279 0.740279 0.740279 0.740279 0.740279 0.740279 0.740279
##      6a      6b      8a      8b      8c      9a      9b      9c
## 0.740279 0.740279 0.740279 0.740279 0.740279 0.740279 0.740279 0.740279
```

Kolmogorov-Smirnov test

- H_0 : The samples come from the identical distributions.
- H_1 : The samples do not come from identical distributions.

```
##
## Two-sample Kolmogorov-Smirnov test
##
## data: k_fauria[, 2] and k_fauria_R[, 2]
## D = 0.011719, p-value = 1
## alternative hypothesis: two-sided
```

Empirical CDFs of the Methods

- The blue curve plots the k estimates from Fauria et al.

- The red curve plots the newly derived k estimates.

