

PCA Parallel Analysis

Test: PCA Parallel Analysis

Design: Full-correlation PCA eigenvalues compared with deterministic 95th-percentile random eigenvalues.

Variables: G1, G2, G3, famrel, freetime, goout

Null hypothesis: No observed PCA eigenvalue exceeds its random 95th-percentile counterpart.

Formula: Retain component j when $\lambda_j(R) > Q_{.95}[\lambda_j(R_{\text{random}})]$.

Source rows: 649

Calculated metrics:

retained_components: 2

replications: 200

first_observed_eigenvalue: 2.782869896154

first_random_threshold: 1.18948370416905

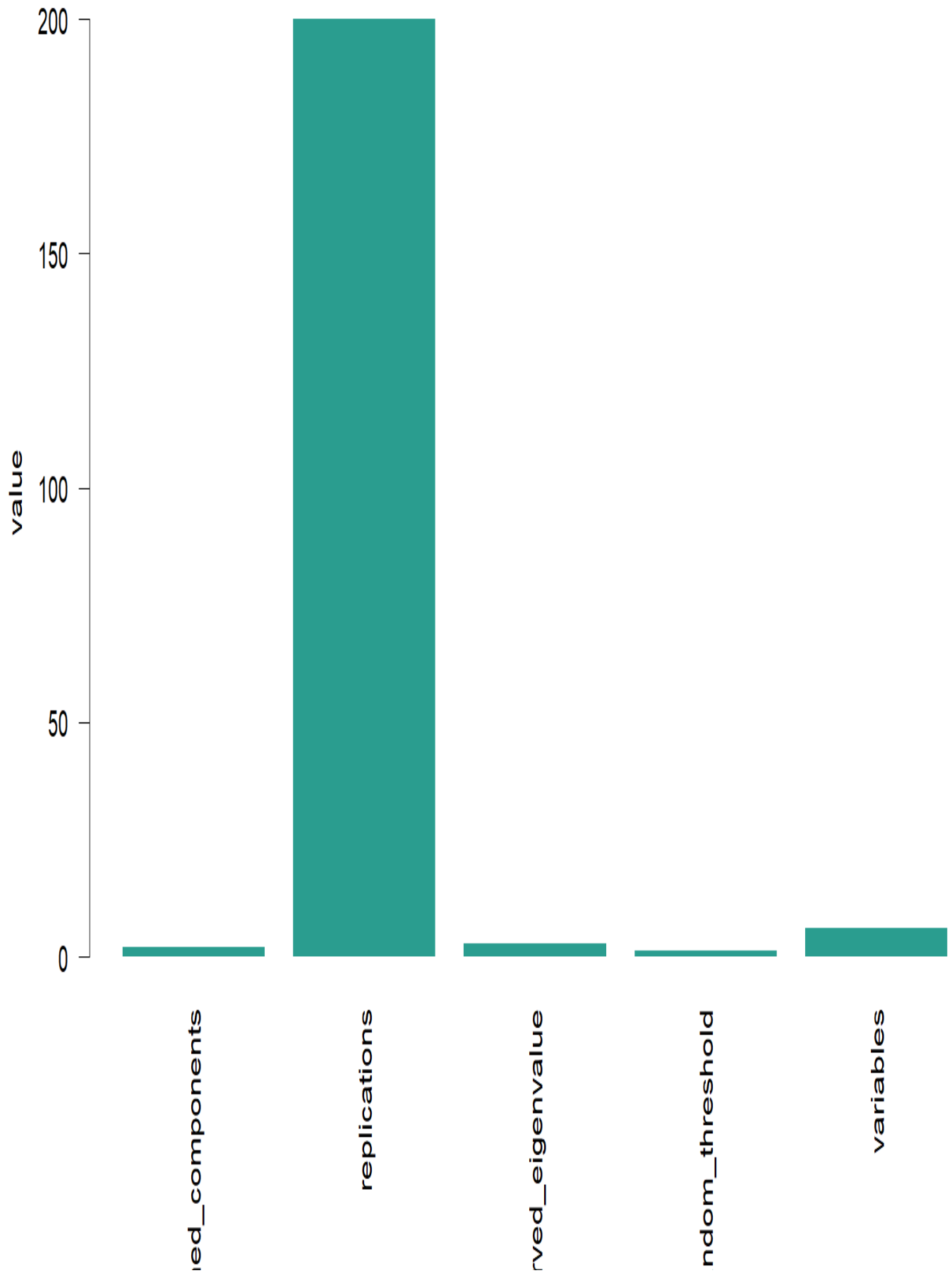
variables: 6

Interpretation:

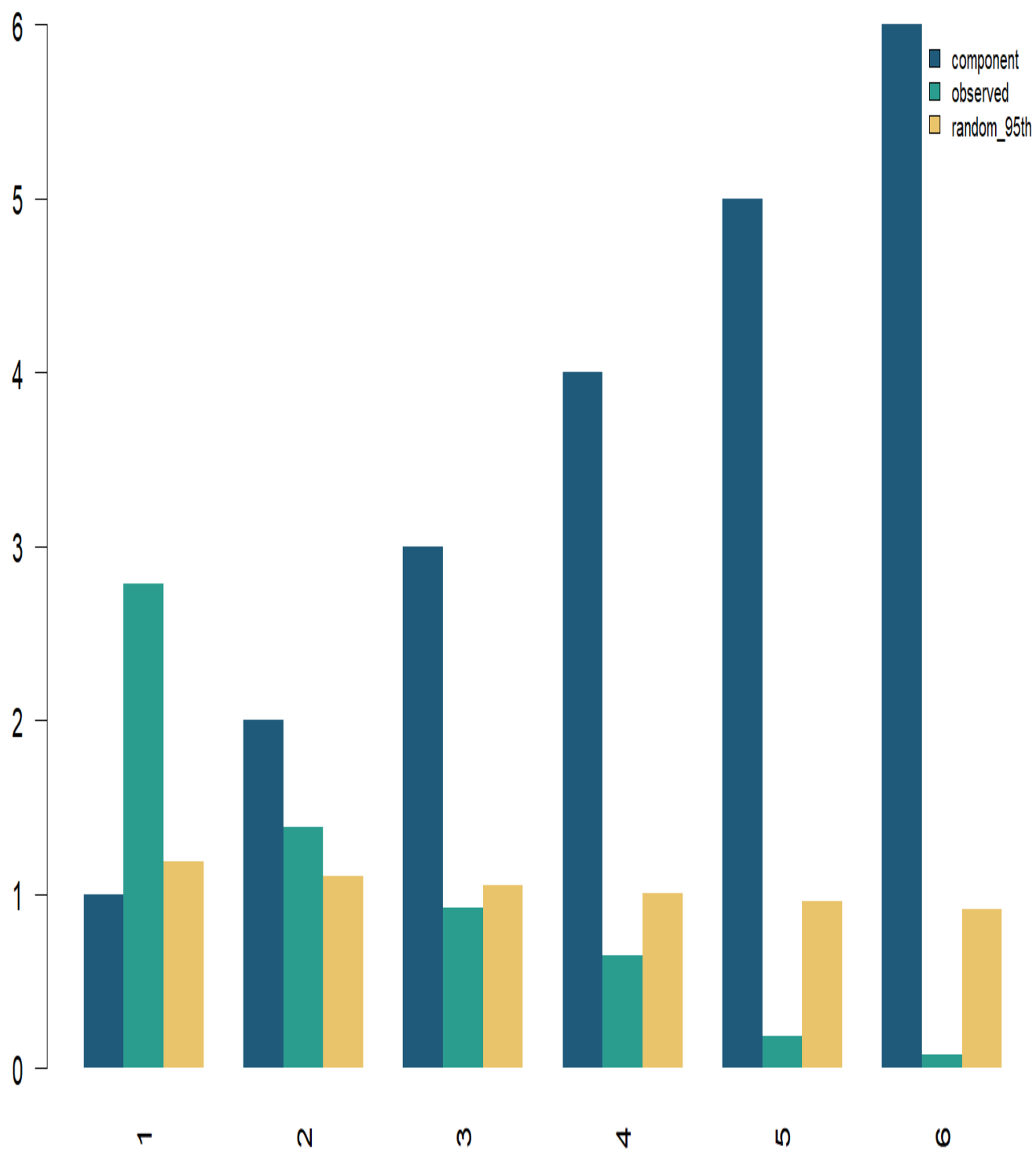
PCA parallel analysis uses unit diagonals.

Retained 2

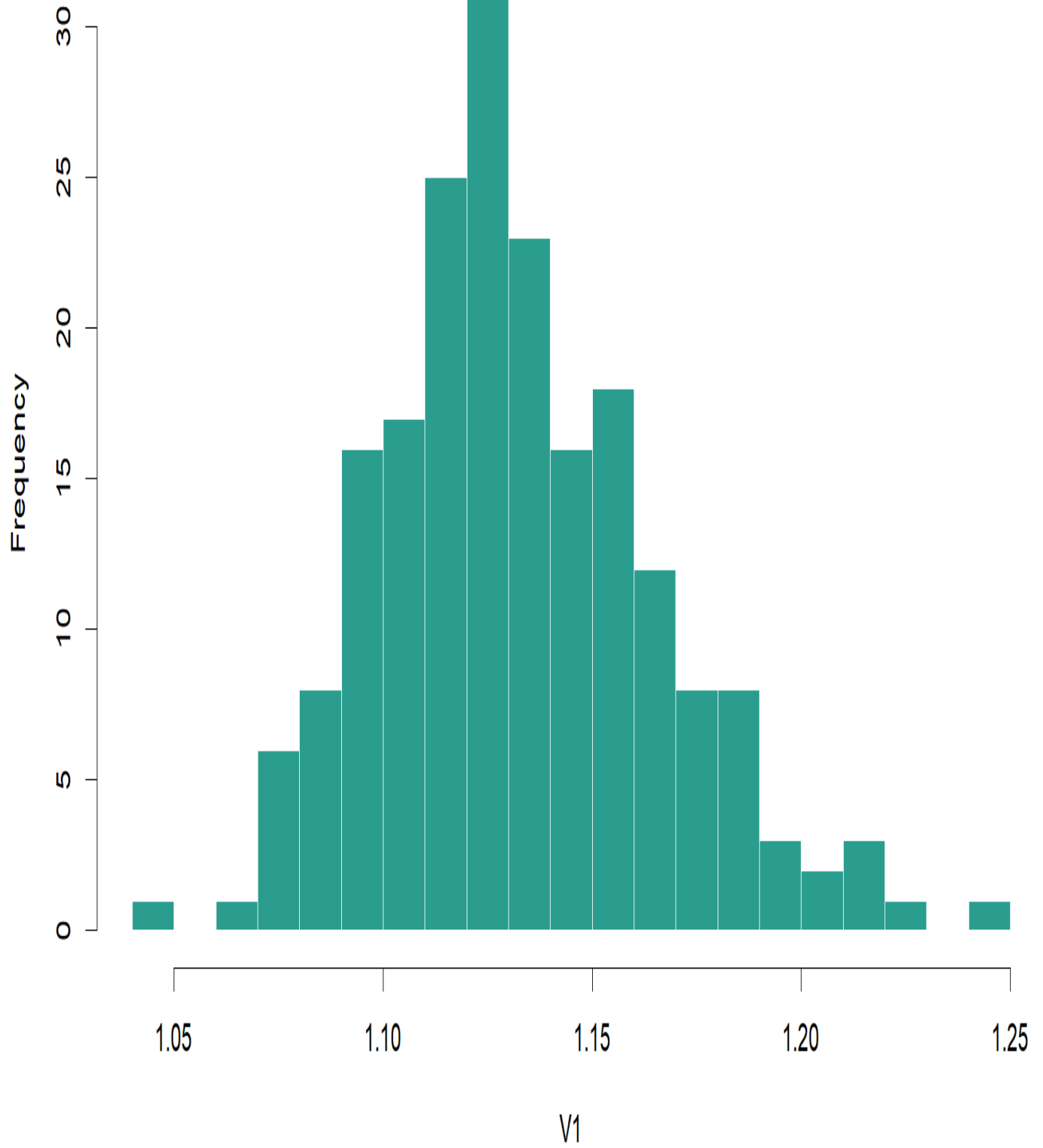
PCA Parallel Analysis - primary metrics



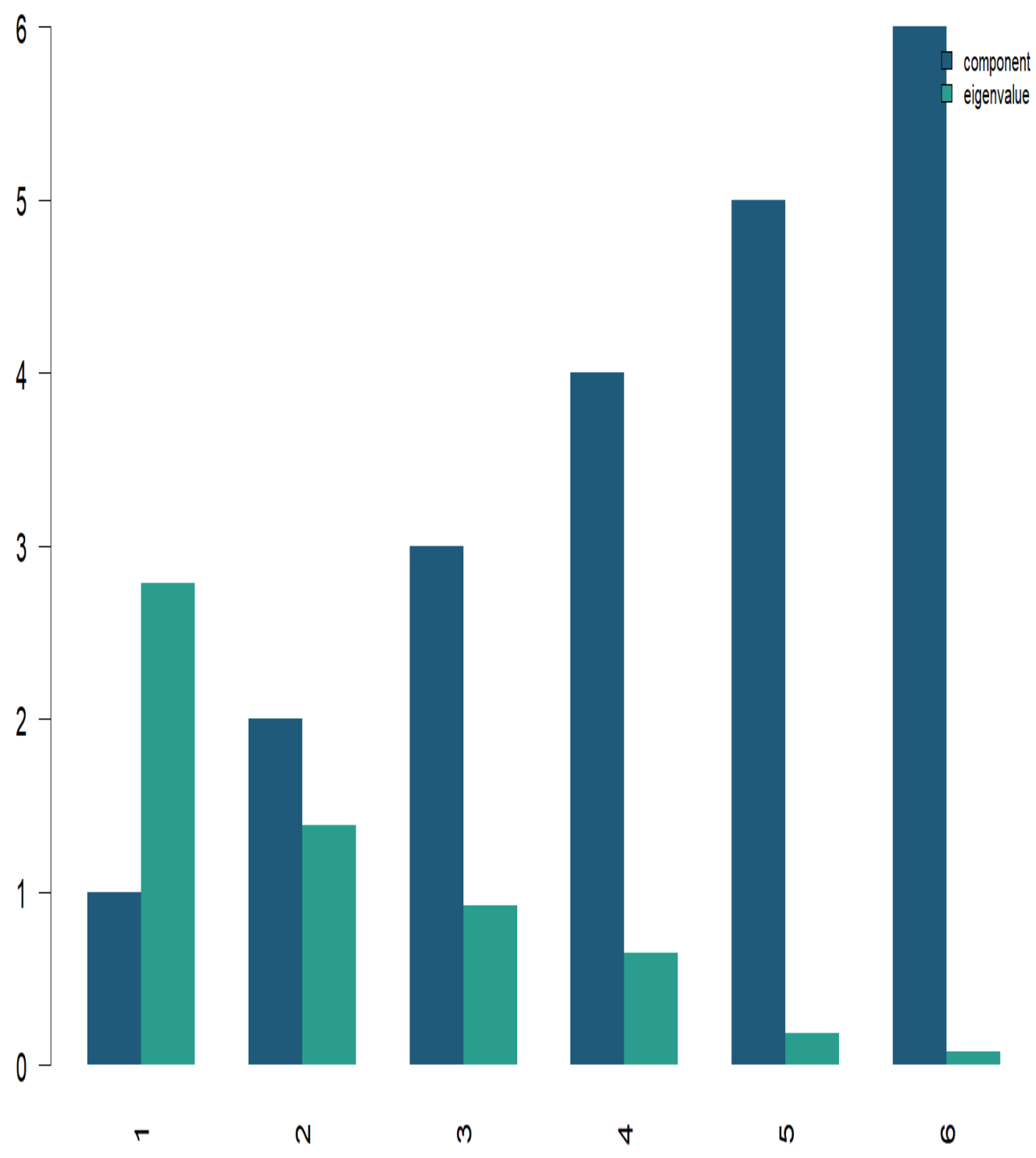
PCA Parallel Analysis - pca parallel comparison



PCA Parallel Analysis - random pca eigenvalues



PCA Parallel Analysis - observed pca eigenvalues



PCA Parallel Analysis verified results

