

Independent test statistics

We first generated independent test statistics.

For the beta distribution, we generated the p-values directly from $\text{Beta}(1,20)$. For the other distributions, we generated the test statistics and calculated the p-values from them. For the t-test, we considered 2 groups of 6 (so $2 \times 6 = 10$ df) and used the t-statistics instead of the z-statistics for the Scott method. For the chisquared test, 1 df corresponds to a 2×2 table, 4 df to a 3×3 table. We used the z-statistics obtained from back-transforming the p-values for the Scott method for the beta and the chisquared cases.

BL = Boca-Leek, Scott T = Scott theoretical null, Scott E = Scott empirical null

10,000 tests

$\pi_0(x)$	Dist. under H_1	Reg. model	FDR					TPR				
			BL	Scott T	Scott E	Storey	BH	BL	Scott T	Scott E	Storey	BH
V	Beta(1,20)	Linear	3.1			5.1	2.3	66.7			13.1	0.0
V	Norm	Linear	4.2	5.0	23.8	4.7	2.5	79.0	83.3	74.8	74.1	66.9
V	T	Linear	3.9	7.4	7.3	4.6	2.5	66.0	80.7	41.1	57.1	43.4
V	Chisq 1 df	Linear	4.2			4.7	2.5	78.9			73.9	66.9
V	Chisq 4 df	Linear	3.9			4.6	2.5	62.3			55.5	46.7