Actual Performance of Wilcoxon Signed Rank

ST551 Lecture 14

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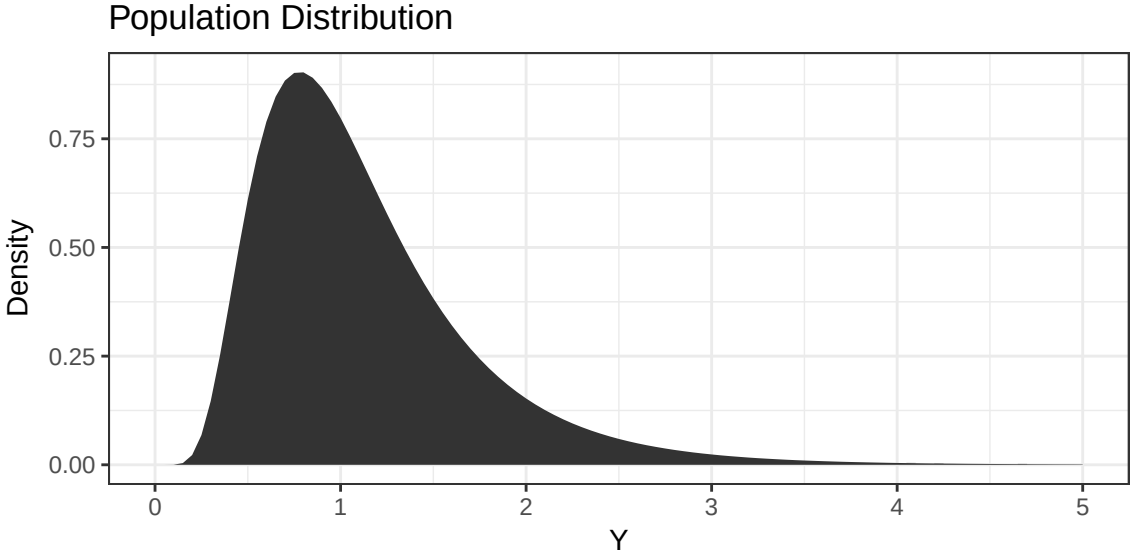
This document includes the actual rejection rates based on simulations of 10,000 samples under each scenario.

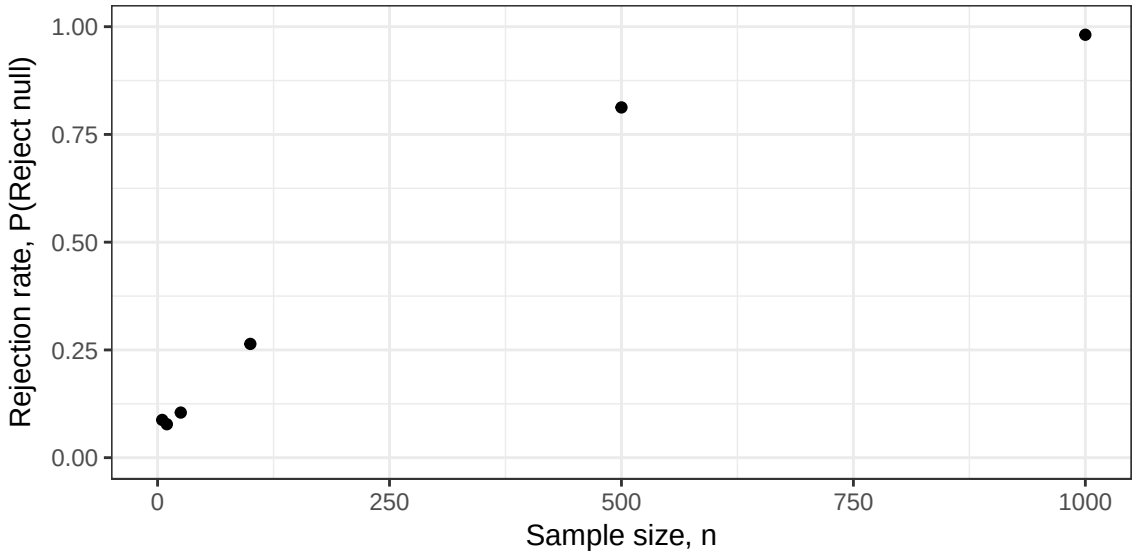
Imagine we have a population that is Log Normal(0, 0.25).



This population has mean, $\mu = \exp(0.125)$ and median, $M = 1$.

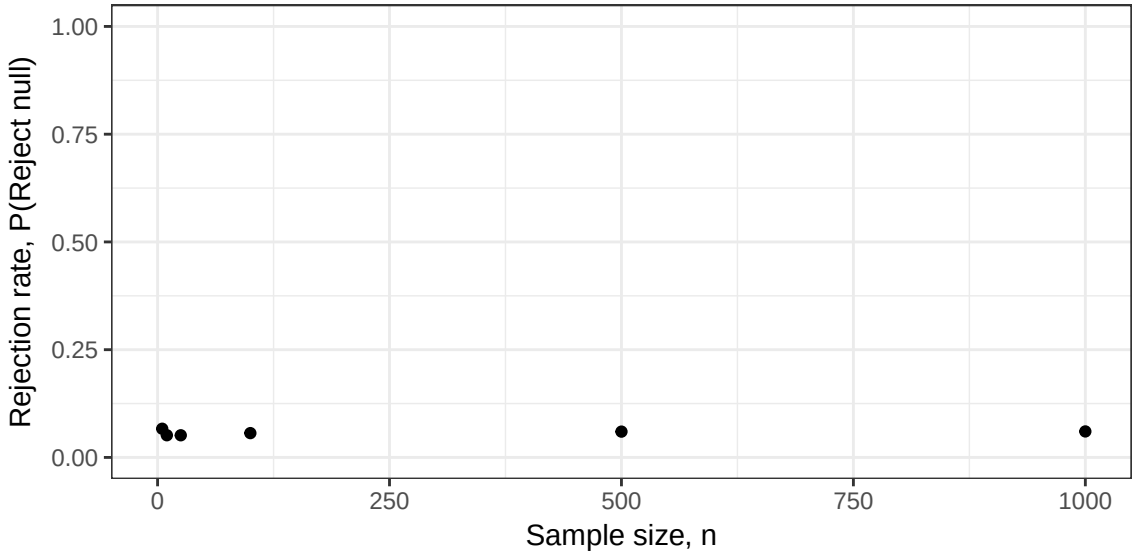
Q1: Consider the null hypothesis $H_0 : \mu = \exp(0.125)$, where μ is the population mean.

Use the template below to sketch the relationship between the rejection rate, for level $\alpha = 0.05$, and sample size you would expect if the Wilcoxon Signed Rank test was a *good* test of the population **mean**.



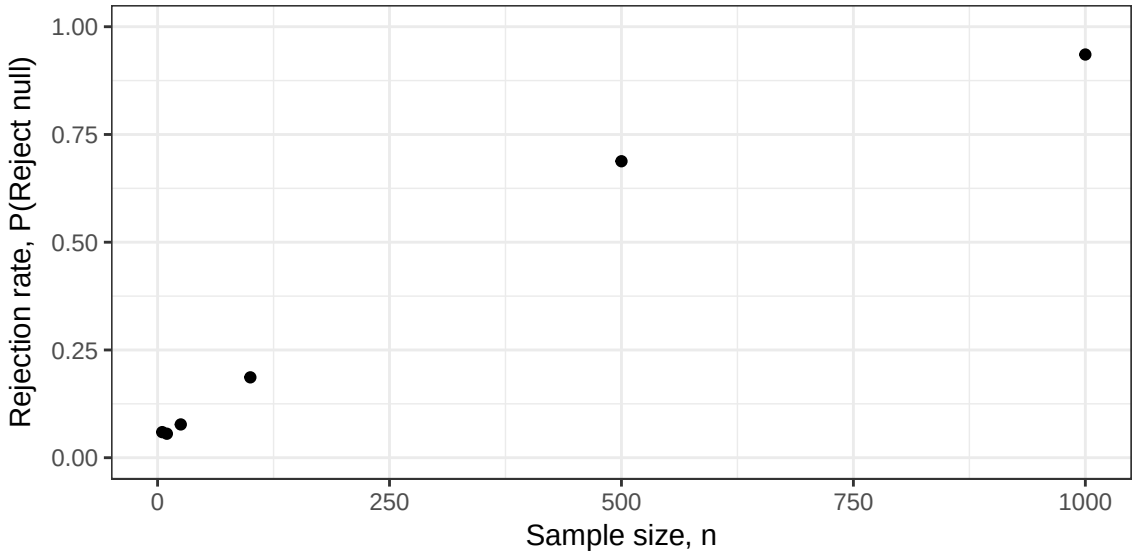
Q2: Consider the null hypothesis $H_0 : \mu = \exp(0.0625) + 1$, where μ is the population mean.

Use the template below to sketch the relationship between the rejection rate, for level $\alpha = 0.05$, and sample size you would expect if the Wilcoxon Signed Rank test was a *good* test of the population **mean**.



Q3: Consider the null hypothesis $H_0 : M = 1$, where M is the population median.

Use the template below to sketch the relationship between the rejection rate, for level $\alpha = 0.05$, and sample size you would expect if the Wilcoxon Signed Rank test was a *good* test of the population **median**.



Q4: Consider the null hypothesis $H_0 : M = 1.06$, where M is the population median.

Use the template below to sketch the relationship between the rejection rate, for level $\alpha = 0.05$, and sample size you would expect if the Wilcoxon Signed Rank test was a *good* test of the population **median**.