

Sample Task - Treatment Size Analysis Report

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For further discussion, we do tests to figure out the impact of the treatment size K to our analysis. Firstly, we try to find out the general pattern for the power as $Y_1(r_1)$ and K increase when r_k is fixed. Secondly, we do the research to find that as K increases, the variation of the ratio r_1 . We make the new power equal to 80% of the origin power to find the variation of its respective $Y_1(r_1)$, and also, transform the form of K like $\log(K)$ and \sqrt{K} .

1 General Pattern

We let K respectively equal to 10, 50 and 100 to find that as r_1 increases from 0 to 1 as σ is fixed. We can find that it always looks like an "S" shape but as K increases, it moves rightward and for the power equaling to 0.8, we can see the corresponding σ_1 becoming larger.

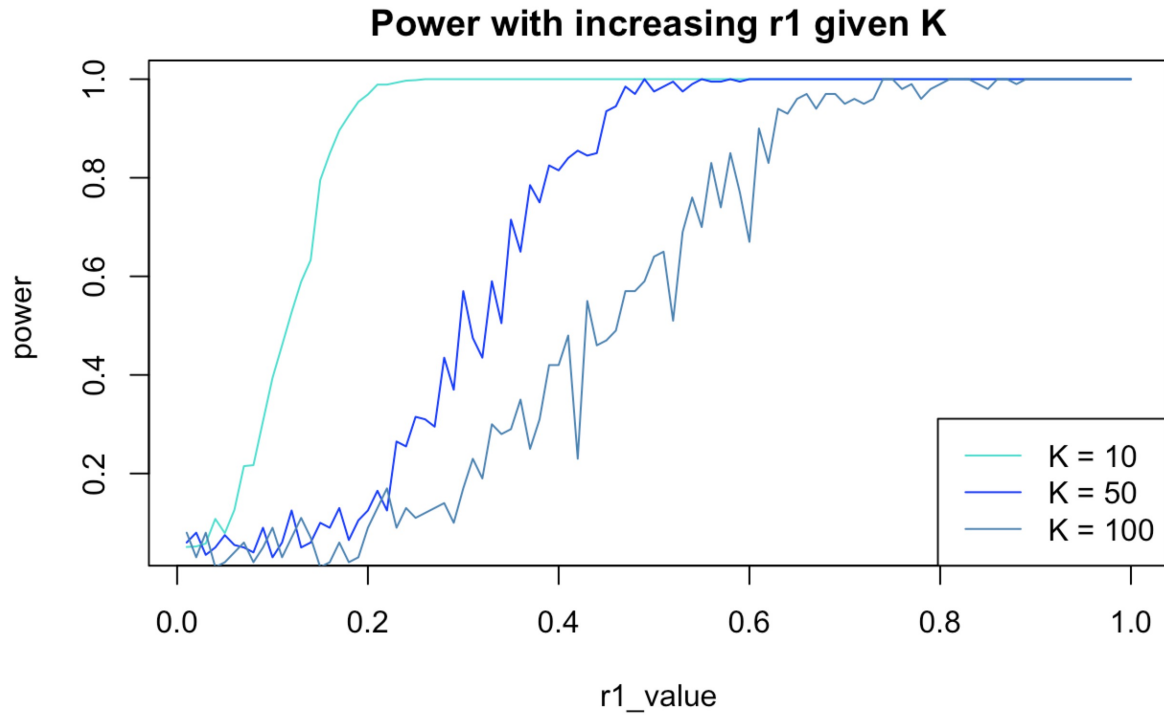


Figure 1.1: General Pattern

2 Critical Ratio for 80% Power

2.1 Origin K

As K increases from 0 to 50, we get the critical ratio r_1 by summing the r_1 if it is qualified where the power is either less than 0.8 or the power goes downward. We can find that as K increases, the critical ratio increases gradually but kind of

fluctuating as well. This will help us to find the appropriate ratio for σ_1 when given K since only when power equals to 0.8 is somehow significant for our research.

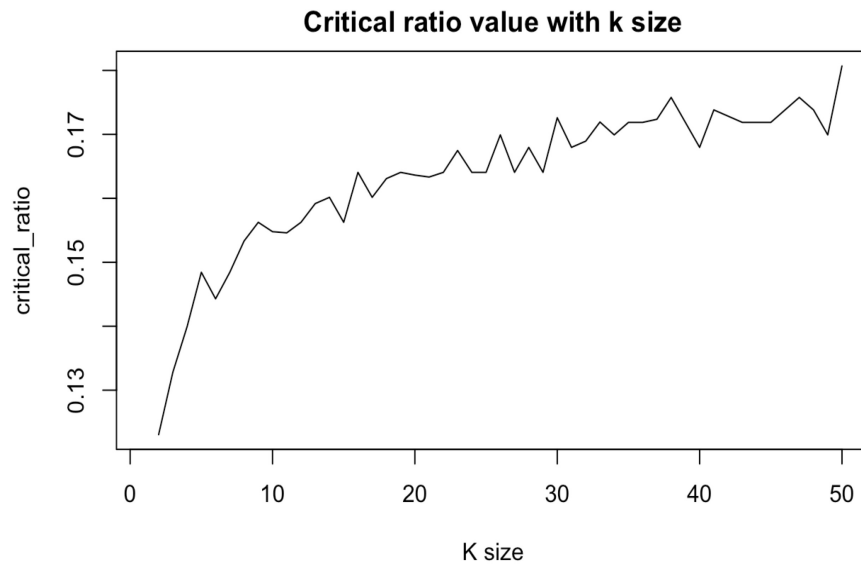


Figure 2.1: Critical Ratio for Origin K

2.2 Log K

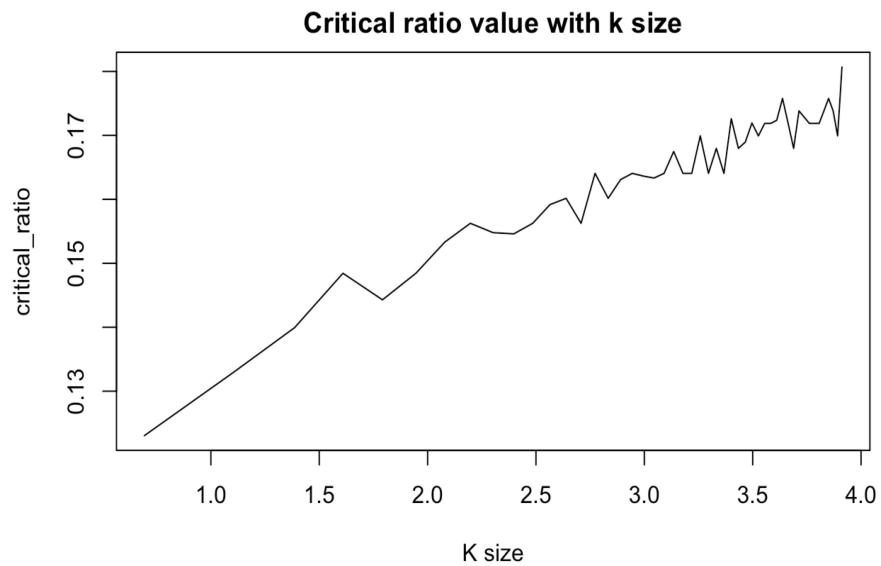


Figure 2.2: Critical Ratio for Log K

2.3 Sqrt K

2.4 Conclusions

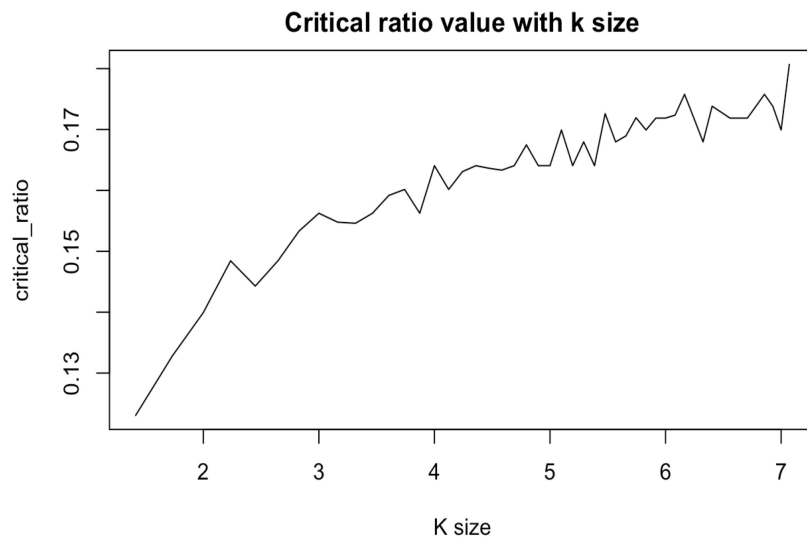


Figure 2.3: Critical Ratio for Sqrt K