

Chapter 13 Analysis of Variance

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Contents

1	Outline	1
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1 Outline

1. how do we compare sample means for more than two groups?
 1. One-way ANOVA
2. Motivating illustration:
3. null: all means are equal, alternative: at least one of the population means differs from one of the others.
4. ANOVA: when $k = 2$, the F-test reduces to a two-sample t-test.
5. ANOVA table: $SST = SSB + SSE$
6. then what is SST for? Will be important in regression. Regression and ANOVA are mathematically the same thing, except that ANOVA is studying Categorical vs quantitative but regression is QQ.
7. Post-hoc analysis - Multiple Comparisons
8. what is the range of Bonferroni correction applied? It is possibly valid that we pick up a subset of groups (k out of n groups) to do pairwise test and use $C(k,2)$ as denominator.
9. Significant ANOVA but not significant pairwise: overly conservative pairwise
10. non-significant ANOVA but significant pairwise: pairwise overrules ANOVA.