

CHAPTER OVERVIEW

10: Quantitative Two-Sample Tests

Introduction

A one-sample parametric test compares the mean against a population value. The population value may come literally from census information, or, more likely, it comes from some applicable theory. The [one-sample t-test](#) was presented, along with how to calculate the [confidence interval](#), in the previous chapter.

In this chapter, we also extend to considering two-sample tests, about hypotheses for two groups. The two groups may consist of observations on different subjects, and thus the two groups are independent of each other — an **independent sample t-test** may be used to test null hypothesis. A common experimental design is to measure individuals two or more times, e.g., observations like body mass index, BMI, recorded on individuals at the start of an exercise program, and again on the same individuals some time after a treatment — a [repeated measures design](#). In this case, the measures are paired and are, thus, not independent, and a **paired-sample t-test** would be advised.

Two-sample parametric tests are used to answer questions about the mean where the data are collected from two random samples of independent observations, each from an underlying normal distribution. The samples may be independent or paired, in which different hypotheses are tested.

[10.1: Compare two independent sample means](#)

[10.2: Digging deeper into t-test plus the Welch test](#)

[10.3: Paired t-test](#)

[10.4: Chapter 10 References and Suggested Readings](#)

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