

STATISTICS FOR ECONOMISTS

Class Exercise 8

These questions are about testing hypotheses about differences between means and proportions (or equality of means and proportions) from different samples. See Barrow ch 5 for more.

1. Given the following data from two independent samples

$$\bar{x}_1 = 115, s_1 = 21, n_1 = 49$$

$$\bar{x}_2 = 105, s_2 = 23, n_2 = 63$$

Test the hypothesis of no difference between the population means against the alternative that the mean of population 1 is greater than the mean of population 2.

2. A random sample of 180 men who took a driving test found that 103 passed. A sample of 225 women found that 105 passed. Test whether pass rates are the same for men and women.
3. A consumer organisation is testing two different brands of battery. A sample of 15 of brand A shows an average useful life of 410 hours with a standard deviation of 20 hours. For brand B a sample of 20 gave an average useful life of 391 hours with a standard deviation of 26 hours. Test whether there is any significant difference in battery life.
4. The output of a group of 11 workers before and after an improvement in the lighting in the factory is as follows:

Before	52	60	58	58	53	51	52	59	60	53	55
After	56	62	63	50	55	56	55	59	61	58	56

Test whether there is a significant improvement in performance.