

Bus 274: Further Statistics for Business

Spring 2010

PROBLEM SHEET # 6

Problem 1: A large department store issues its own credit card. The credit manager claims that the average monthly unpaid balance has exceeded \$400 and urges a change in customer policy.

- Which null hypothesis, against which alternative, should the credit manager test in order to support her claim?
- For a sample of 12 observations, the sample mean was 402 and the standard deviation 6. Assuming that unpaid balance is normally distributed, what is your decision regarding the null hypothesis?

Problem 2: A manufacturer of computer hardware analyzes the development of revenues from printing and imaging products. Concerning one major customer, the following revenues (in dollars) were recorded during the first five months of business years 2007 and 2008 (which both start in November of the previous year):

month #	1	2	3	4	5
2007	372848	395124	759036	305065	80298
2008	94715	318419	374565	270084	504201

Since there are signs of an economic downturn in this particular field, the management is wondering if there is evidence that monthly revenues coming from this customer have fallen from 2007 to 2008.

- Formulate the null hypothesis and its alternative appropriately, stating clearly what the random variables of interest are.
- Using matched pairs, test your hypothesis with a significance level of 5%. (In a pre-test the normality assumption was not rejected.)
- What does your result mean to the manufacturer?
- Discuss the advantage/disadvantage of the matched pair test design in this context.

Problem 3: Which of the following is the researcher usually interested in supporting when he or she is engaging in hypothesis testing?

- A: The alternative hypothesis.
B: The null hypothesis.
C: Both the alternative and the null hypothesis.
D: Neither the alternative nor the null hypothesis.