Bad debt expense\_01 Bad debt expense\_05
Mean 5448463.444 9035076.914
Variance 3.38473E+13 1.15453E+14
Observations 81 81
Pooled Variance 7.46503E+13
Hypothesized Mean Difference 0
df 160
t Stat -2.641778325
P(T<=t) one-tail 0.00453286
t Critical one-tail 1.654432901
P(T<=t) two-tail 0.00906572
t Critical two-tail 1.97490156

t-Test: Two-Sample Assuming Equal Variances

Payroll Expenses\_01 Payroll Expenses\_05
Mean 39588297.31 52004556.17
Variance 2.01275E+15 3.50751E+15
Observations 81 81
Pooled Variance 2.76013E+15
Hypothesized Mean Difference 0
df 160
t Stat -1.504018796
P(T<=t) one-tail 0.067273945
t Critical one-tail 1.654432901
P(T<=t) two-tail 0.13454789
t Critical two-tail 1.97490156

• Develop a research question based on the variables in the data set.

1.) Is there a significant difference between the means of bad debt expenses and payroll expenses

• Formulate a null hypothesis and an alternative hypothesis.

Actual Hypothesis Testing:

2.)

Null Hypothesis:

There is no significant difference between the means of bad debt expenses and payroll expenses or Ho: U1 = U2

Alternative Hypothesis:

There is a significant difference between the means of bad debt expenses and payroll expenses or H1: U1 not equal to U2

Test at alpha = 0.05 at df = n1 + n2 – 2 = 81 + 81 – 2 = 160

Critical T value:

t Critical two-tail ± 1.97490156

Computed T value: Stat -2.641778325

Decision:

Since the computed t value is -2.64 and is less than the critical t value ( -1.9749) then we reject the null hypothesis.

Conclusion:

There is a significant difference between the means of bad debt expenses and payroll expenses or H1: U1 ≠ U2 at alpha = 0.05 (df = 160)

• Consider the difference between a Type I error and a Type II error and think about how each of these might be demonstrated in this situation.

3.) Type I error occurs when we reject the null hypothesis where in fact and in reality there is really a significant difference between the two means. (the null hypothesis was rejected though it was true) while type II error happens when we failed to reject the null hypothesis, where in fact it should be rejected instead.

• Research what is meant by a "familywise error" and consider whether or not this type of error might be of concern in this situation.

4.)

In statistics, familywise error rate (FWER) is the probability of making one or more false discoveries, or type I errors, among all the hypotheses when performing multiple hypotheses tests, and can be of concern in this situation.