

# [Employees of axolotl corporation essay sample](https://assignbuster.com/employees-of-axolotl-corporation-essay-sample/)

Employees of Axolotl Corporation were sampled at random from pay records and asked to complete an anonymous job satisfaction survey, yielding the tabulation shown. Research question: at a=. 05, is job satisfaction independent of pay category?

Employees;

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Satisfied  | neutral  | dissatisfied  | total  |
|  |  |  |  |  |
| Pay type salaried  | 20  | 13  | 2  | 35  |
| Hourly  | 135  | 127  | 58  | 320  |
| Total  | 155  | 140  | 60  | 355  |

Step 1: State the Hypotheses

Job satisfaction is independent of pay category.

Job satisfaction is dependent of pay category.

Step 2: State the Decision Rule

For the pay records contingency table,

r = 2 rows, and c = 3 columns. Therefore degree of freedom is

df = (r – 1)(c – 1) = (2 – 1)(3 – 1) = 2

At α = 0. 05 and df = 2 , the right-tail critical value is 5. 991.

For α = 0. 05in a right-tailed test, the decision rule is:

Reject  if > 5. 991. Otherwise, do not reject.

Step 3: Calculate the Expected Frequencies

The expected frequency in row j and column k is

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  | Satisfied  | Neutral  | Dissatisfied  | Total  |
| Pay type salaried  | Observed  | 20  | 13  | 2  | 35  |
|  | Expected  | 15. 28  | 13. 80  | 5. 92  | 35. 00  |
| Hourly  | Observed  | 135  | 127  | 58  | 320  |
|  | Expected  | 139. 72  | 126. 20  | 54. 08  | 320. 00  |
| Total  | Observed  | 155  | 140  | 60  | 355  |
|  | Expected  | 155. 00  | 140. 00  | 60. 00  | 355. 00  |

Step 4: Calculate the Test Statistic

Using Excel MegaStat, The chi-square test statistic is  = 4. 54.

|  |  |
| --- | --- |
| Chi-square Contingency Table Test for Independence  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |
|  |  |  | Satisfied  | Neutral  | Dissatisfied  | Total  |
|  | Pay type salaried  | Observed  | 20  | 13  | 2  | 35  |
|  |  | Expected  | 15. 28  | 13. 80  | 5. 92  | 35. 00  |
|  |  | O – E  | 4. 72  | -0. 80  | -3. 92  | 0. 00  |
|  |  | (O – E)² / E  | 1. 46  | 0. 05  | 2. 59  | 4. 10  |
|  | Hourly  | Observed  | 135  | 127  | 58  | 320  |
|  |  | Expected  | 139. 72  | 126. 20  | 54. 08  | 320. 00  |
|  |  | O – E  | -4. 72  | 0. 80  | 3. 92  | 0. 00  |
|  |  | (O – E)² / E  | 0. 16  | 0. 01  | 0. 28  | 0. 45  |
|  | Total  | Observed  | 155  | 140  | 60  | 355  |
|  |  | Expected  | 155. 00  | 140. 00  | 60. 00  | 355. 00  |
|  |  | O – E  | 0. 00  | 0. 00  | 0. 00  | 0. 00  |
|  |  | (O – E)² / E  | 1. 62  | 0. 05  | 2. 88  | 4. 54  |
|  |  |  |  |  |  |  |
|  |  |  | 4. 54  | chi-square  |  |  |
|  |  |  | 2  | df  |  |  |
|  |  |  | . 1032  | p-value  |  |  |

Step 5: Make the Decision

The test statistic  = 4. 54 is less than the critical value 5. 991.

Decision: Do not reject  .

This is also confirmed by p-value (0. 1032).

At level of significance, α = 0. 05, the data provide sufficient evidence to conclude that job satisfaction is independent of pay category.