

# [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.