

1. Problem

In a small city the satisfaction with the local public transportation is evaluated. One question of interest is whether inhabitants of the city centre are more satisfied with public transportation compared to those living in the suburbs.

A survey with 250 respondents gave the following contingency table:

Evaluation	Location	
	city centre	suburbs
very good	24	13
good	38	31
bad	30	61
very bad	8	45

The following table of percentages was constructed:

Evaluation	Location	
	city centre	suburbs
very good	64.9	35.1
good	55.1	44.9
bad	33.0	67.0
very bad	15.1	84.9

Which of the following statements are correct?

- (a) The percentage table can be easily constructed from the original contingency table: percentages are calculated for each column.
- (b) The percentage table contains row percentages.
- (c) The value in row 2 and column 2 in the percentage table indicates: 44.9 percentage of those, who evaluated the public transportation as good live in the suburbs.
- (d) The percentage table gives the satisfaction distribution for each location type.
- (e) The value in row 1 and column 2 in the percentage table indicates: 35.1 percent of those living in the suburbs evaluated the public transportation as very good.

Solution

In the percentage table, the row sums are about 100 (except for possible rounding errors). Hence, the table provides row percentages, i.e., conditional proportions for location given satisfaction level.

- (a) False. This evaluation gives column percentages. But the table gives row percentages.
- (b) True. The row sums are about equal to 100 (except for possible rounding errors).
- (c) True. This is the correct interpretation of row percentages.
- (d) False. The column sums do not give 100.
- (e) False. This is an interpretation of column percentages, but the table gives row percentages.