Sample essay on correlation and regression with spss

Business, Company

In this paper I would like to test the relationship between the education level of respondent and total family income. That’s why I pick two variables – EDUC and INCOME and test the relationship between them.

Null hypothesis: There is no association between the variables.

Alternative hypothesis: There is a significant association between the variables.

H0: ρ= 0Ha: ρ≠0

Set level of significance alpha at 5%:

α= 0. 05

The assumptions for correlation testing are that the pair of variables measured has a normal bivariate distribution population. Also, the correlation coefficient measures only linear associations, and only in case if the data is not heteroscedastic or has outliers.

Test the correlation with SPSS:

CORRELATIONS /VARIABLES= INCOME EDUC /PRINT= TWOTAIL NOSIG /MISSING= PAIRWISE.

The obtained correlation coefficient is significant (p-value less than 0. 001) and is equal to 0. 255 which is an evidence of weak positive linear relationship between the variables. We can reject the null hypothesis and approve alternative hypothesis.

Now perform regression analysis with EDUC as predictor and INCOME as criterion variable:

REGRESSION /MISSING LISTWISE /STATISTICS COEFF OUTS CI(95) R ANOVA /CRITERIA= PIN(. 05) POUT(. 10) /NOORIGIN /DEPENDENT INCOME /METHOD= ENTER EDUC.

The F-value of ANOVA is 92. 861 with p-value less than 0. 001. Hence, the regression is appropriate to be used and significant. The p-values of each coefficient are also significant. And the regression equation is the following expression:

INCOME= 8. 091+0. 204*EDUC

This equation helps to find approximate value of total family income when the highest year of school completed is known.

Sources

Argyrous, G. Statistics for Research: With a Guide to SPSS, SAGE, London, ISBN 1-4129-1948-7

Levesque, R. SPSS Programming and Data Management: A Guide for SPSS and SAS Users, Fourth Edition (2007), SPSS Inc., Chicago Ill. ISBN 1-56827-390-8