

Example of correlation and regression essay

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Question 1:

When there is a relationship between any two or more variables in statistics is referred as an association. This association between variables is measured using various statistical parameters, such as product moment correlation coefficient, distance, ttetrachronic, Goodman, and spearman's rank correlations.

The Pearson's product moment correlation (Pearson's correlation) is a common measure of the association between two or more variables. This method is made to test for linear relationships between two or more variables. In this case, if the hypothesis predicts that a linear relationship exist between variables, the Pearson's correlations can be used. Moreover, the data must be quantitative and continuous. In addition, the data two variables must be measured in ratio or interval scale. Also, the method assumes that the data is normally distributed, the relationship between variables is linear, outliers of the data are removed from the distribution, and the distribution should show homoscedasticity in the distribution.

The value of the spearman's correlation can take values from +1 to -1. In this case, A correlation of zero signifies that there is no relationship between the variables. While, a correlation coefficient of more than zero shoes that as one variable increases, the other variable increases. This is known as positive correlation. Likewise, values of correlation coefficient less than 0 indicates that increase in one variable result to a corresponding decrease in the value of the other. This is referred as negative correlation. The range of the values of the correlation coefficient between 0 and 1 shows the degree of the relationship between the two variables (Robins, Fraley, & Krueger2007).

The value of the correlation coefficient may show that a relationship exist variables. However, this may not imply that change in one variable causes a change in the other variable. Therefore, if the variables are statistically significant, they may not have any practical significance. Therefore, the relationship sets ground for further investigations.

Question 2:

Both Regression and correlation can be used to determine relationship between two variables. Same mathematical procedures are applied when determining the relationship between the two continuous variables. This mathematical procedure makes use of scatter diagram to provide a graphical representation between the two continuous variables. Despite the application of same mathematical procedure correlation differ significantly from regression in the following ways. First and foremost, correlation is used when both variables are random on the other hand regression is used to determine relation one variable, predictor, and another variable criterion. in Regression therefore, the predictor is taken at random while the criterion value is dictated by the predictor. The goal of correlation is to find a number which explains the relationship between the random variables (quantify the relationship between variables). However, regression aims at explaining how criterion value changes when the predictor changes and develops equation to predict the criterion variable.

Regression is applied when the researcher is sure that changes in predictor variable must lead to a change in the criterion variable. For example, determining the relationship between height and weight of a person can make use of regression because the researcher is aware that there is a

relationship between the two variables (Davis, 2003). The aim of the research is to come up with equation which can be applied in determining how weigh changes when height of a person changes. On the other hand, correlation can be applied when there is no prior knowledge of relationship between two variables. For example, finding the correlation between height and level of education is appropriately determined using correlation. The researcher aims at determining whether there is positive, negative or no correlation at all.

References

Davis, S. F. (2003). Handbook of research methods in experimental psychology. Malden, MA: Blackwell Pub..

Robins, R. W., Fraley, R. C., & Krueger, R. F. (2007). Handbook of research methods in personality psychology. New York: Guilford Press.