

The slope and y -intercept of the best fit line is interpreted in a manner similar to the interpretation of such in a linear equation. That is, the slope represents the expected amount of change in Y for every one unit change in X . On the other hand, the y -intercept is the expected value of Y when the value of $X = 0$ provided the data includes $X = 0$.

[REDACTED]

Testing the Significance of β_1

In addition to the best fit line that describes the linear relationship between X and Y , you can also make inferences regarding the regression parameters. However, inferences concerning b_1 is particularly important

[REDACTED]

Diagnostic Checking

An inference regarding regression parameters is valid provided that assumptions underlying the simple linear regression model are satisfied. These assumptions include the following:

[REDACTED]

[REDACTED]

Measure of Model Adequacy

The *coefficient of determination* r^2 (or R^2), also known as the *measure of goodness-of-fit*, discussed previously in correlation analysis is likewise computed to assess further the usefulness of the simple linear regression model for prediction purposes.

In simple linear regression analysis, r^2 measures the total variation in the Y values that is explained by the simple linear regression model

[REDACTED]