

Homoscedasticity

Homoscedasticity refers to a statistical concept in regression analysis and other statistical modeling techniques. It essentially means that the variance of the errors, or residuals, of a regression model is constant across all levels of the independent variables. In simpler terms, it suggests that the spread of data points around the regression line is consistent throughout the range of predictor variables.

When homoscedasticity is present, it indicates that the model's predictions are equally precise across all levels of the independent variables. This assumption is important in regression analysis because violating it can lead to biased estimates and inaccurate inference about the relationships between variables.

Heteroscedasticity

Heteroscedasticity is the opposite of homoscedasticity. It refers to a situation in regression analysis where the variance of the errors, or residuals, is not constant across all levels of the independent variables. In other words, the spread of data points around the regression line varies at different levels of the predictor variables.

When heteroscedasticity is present, it suggests that the model's predictions are not equally precise across all levels of the independent variables. This violation of the assumption of homoscedasticity can lead to biased estimates and inaccurate inference about the relationships between variables. Detecting and addressing heteroscedasticity is crucial in regression analysis to ensure the reliability and validity of the model's results.

Homoscedasticity Vs Heteroscedasticity

Features	Homoscedasticity www.facebook.com/thesishelper01	Heteroscedasticity
Apply	Homoscedasticity assumptions apply to linear regression, t-tests, and ANOVA.	Heteroscedasticity assumptions apply to linear regression, t-tests, and ANOVA.
Detect	Bartlett test and Levene's test checks the homogeneity of variance in t-tests and ANOVA.	There are several tests that can be used to detect heteroscedasticity in a regression model such as Breusch-Pagan test, White test and Park test
Violates	Homoscedasticity do not impact the validity of econometric analysis or financial models like CAPM.	Heteroscedasticity impact the validity of econometric analysis or financial models like CAPM.
In Short	Homoscedasticity is a statistical property that refers to a situation in which the variability of the residuals which mean the difference between the observed values & predicted values) in a regression model is constant across the range of predictor values. This means that the error variance is kept constant with level of independent variables.	Heteroscedasticity is a statistical property that refers to a situation in which the variability of the residuals which mean the difference between the observed values & predicted values) in a regression model is not constant across the range of predictor values. This means that the error variance changes with level of independent variables.