**Coefficient of Determination Using R**

Coefficient of determination or R-squared is used to measure goodness of fit between the model and the data.  The statistic R2 measures the percentage of variation in the outcome (response variable in the regression) explained by the independent variables.  If a regression has a low R-squared then the right variables have not been included in the analysis, something often referred to as a model specification bias. In R, you can calculate the coefficient of determination (R-squared) for a linear regression model using the summary() function applied to the linear regression model object.  Here's how to calculate it. Assuming you have already fitted a linear regression model, which we'll call model, using a dataset called mydata, you can calculate R-squared as follows:

 # Fit the linear regression model   
model <- lm(dependent\_variable ~ independent\_variable1 + independent\_variable2, data = mydata)   
# Calculate R-squared summary(model)$r.squared

In this code: lm() is used to fit the linear regression model, where dependent\_variable is the variable you're trying to predict, and independent\_variable1 and independent\_variable2 are the independent variables in your model. summary(model) generates a summary of the regression model. $r.squared extracts the R-squared value from the summary.

After running this code, you'll get the R-squared value, which is a number between 0 and 1. A higher R-squared value indicates that a larger proportion of the variability in the dependent variable is explained by the independent variables, which suggests a better fit of the model to the data.