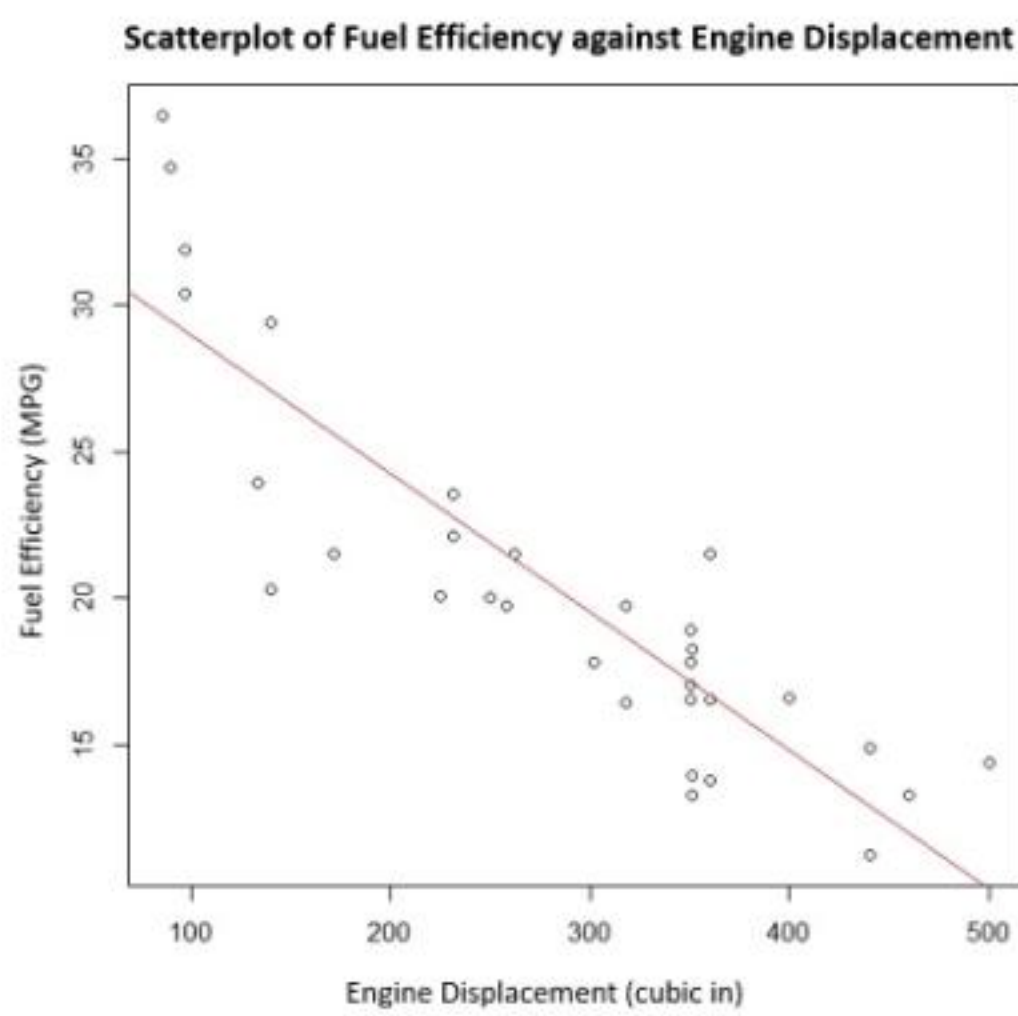


4.1: Introduction to the Lesson

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Topic 4.1: Introduction to the Lesson

Linear regression models are used to explore the relationship between variables as well as make predictions. Simple linear regression concerns the study of only one predictor variable with one response variable. For example, recall this scatterplot from module 1, which shows the fuel efficiency of vehicles and their engine displacement among 32 automobiles.



You could use a simple linear regression to study how the fuel efficiency and engine displacement are related to one another. But we do know that there are other factors that influence the fuel efficiency of a vehicle. How can we incorporate other factors such as the horsepower and weight into our model to improve the predictive ability of the model? You will need to build a linear model that includes multiple predictor variables. A simple linear regression (SLR) cannot handle this. You will need to use a multiple linear regression (MLR) model. MLR models allow us to examine the effect of multiple predictors on the response variable simultaneously.

This lesson explores the MLR model as an extension of the SLR model. As you learn about the MLR model, make a comparison with what you learned in the first three modules by asking yourself: How similar is the MLR model to the SLR model? What are the differences between the MLR model and the SLR model?