Multi-Variate Regression



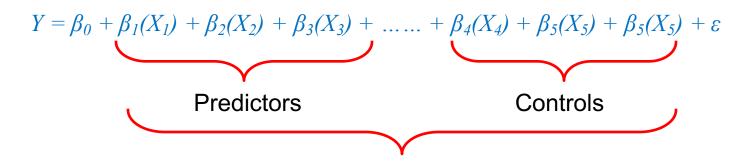




Multi-Variate Regression

(or Multiple Linear Regression)

- Most regression models include more than one "predictor" variable and possibly more than one "control" variable
- Predictor and control variables are ALL "independent variables"



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- Interpretation: β_1 is the effect size of X_1 , that is, how much Y changes, when X_1 increases by 1 unit, holding $X_2 \dots X_5$ constant. Same for β_2 , etc.
- Predictors and controls work in the exact same way. They are just labels:

Independent Variables

- ➤ A predictor is a variable we believe will predict Y
- > A control is a variable that may affect Y, so we include it for control







```
lm.fit = lm(y\sim x1+x2+x3+etc., data=mtcars) \rightarrow Linear regression
model
summary (lm.fit) -> Getting summary data from the linear model
predict (lm.fit) > Display predicted values, the training data set is
used by default
predict(lm.fit, newdata=dataName) → To make predictions using
a different test data set
plot (lm.fit) → To display various key regression plots
plot(lstat, medv) → Plot two variables
abline (lm.fit) -> Draw a regression line in the plot (useful for simple
bi-variate regression only)
```





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