Chapter 3-3 Practice

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College GPA

Simulate the bias term from the omitted variable bias formula, $E(\tilde{\beta}_1) = \beta_1 + \beta_2\delta$ for the model $CollegeGPA = \beta_0 + \beta_1 HighSchoolGPA + \beta_2 ACTScore + u$ using the *gpa*1 data.

1. Define `beta.hat` as the coefficient vector (`coef()`) from the OLS estimates (`lm()`) of college GPA on ACT score and high school GPA and `delta.tilde` as the coefficient vector from the OLS estimates of high school GPA on ACT score.
2. Calculate the formula for $\tilde{\beta}_1 = \hat{\beta}_1 + \hat{\beta}_2\hat{\delta}$.
3. Produce a table summarizing the results for `beta.hat` and `beta.tilde` for the simple regression of college GPA on ACT Score.