Problem C3.1, page 110 in 5e Wooldridge

A problem of interest to health officials (and others) is to determine the effects of smoking during pregnancy on infant health. One measure of infant health is birth weight; a birth weight that is too low can put an infant at risk for contracting various illnesses. Since factors other than cigarette smoking that affect birth weight are likely to be correlated with smoking, we should take those factors into account. For example, higher income generally results in access to better prenatal care, as well as better nutrition for the mother. An equation that recognizes this is:

$$bwght = \beta_0 + \beta_1 cigs + \beta_2 faminc + u$$

(i) What is the most likely sign for β_2?

(ii) Do you think $cigs$ and $faminc$ are likely to be correlated? Explain why the correlation might be positive or negative.

(iii) Now, estimate the equation with and without $faminc$, using the data in BWGHT.dta. Report the results in equation form, including the sample size and R^2. Discuss your results, focusing on whether adding $faminc$ substantially changes the estimated effect of $cigs$ on $bwght$.

Replicate Lecture 7 in R

See Lecture7.R and accompanying data file to replicate what we went over in Lecture 7.