Assignment II: Functional Form

Econometrics I

Assigned: Feb 16, 2023

Problem 1

Use the data in BWGHT2 for this exercise.

1. Estimate the equation
$$log(bwght) = \beta_0 + \beta_1 npvis + \beta_2 npvis^2 + u$$
by OLS, and report the results in the usual way. Is the quadratic term significant?

2. Show that, based on the equation from part (i), the number of prenatal visits that maximizes $log(bwght)$ is estimated to be about 22. How many women had **at least 22** prenatal visits in the sample?

3. Does it make sense that birth weight is actually predicted to decline after 22 prenatal visits? Explain.

4. Add mother's age to the equation, using a **quadratic functional form**. Holding *npvis* fixed, at what mother's age is the birth weight of the child maximized? What fraction of women in the sample are older than the *"optimal"* age?

Note: *Dataset are available in our GitHub repository class.*