Chapter 5. Econometrics

1. To examine the effect of initial on-the-job training on subsequent worker and firm behavior, you gather the appropriate data on individuals’ initial and subsequent productivity, initial and subsequent wages, and duration of initial on-the-job training. Using the data, you estimate the following two econometric models:

\[
\%\Delta \omega_i = \alpha_0 + \alpha_1 OJT_i + \epsilon_i \\
\%\Delta MP_i = \beta_0 + \beta_1 OJT_i + \nu_i
\]

where a ‘\%\Delta’ in front of a variable means the percentage change in that variable from the pre-to post-training period, \(\omega\) is the wage of individual \(i\), \(OJT\) is the number of hours of on-the-job training received in the initial period, and \(\epsilon\) and \(\nu\) are the error terms. Given the data presented in Figure 5.7 in the text, what do you expect the signs of \(\alpha_1\) and \(\beta_1\) will be? How do you expect \(\alpha_1\) and \(\beta_1\) to compare in magnitude? Why?

2. Re-analyzing the data from the previous question, let us assume that one can clearly divide the data into individuals that work in firms that provide only specific training and individuals who work in firms that provide only general training. You estimate the two equations from Question (1) twice: once using the sub-sample of individuals receiving specific training, and once using the sub-sample of workers receiving only general training. Now what do you expect the signs of \(\alpha_1\) and \(\beta_1\) will be in each of the two sub-samples? How do you expect \(\alpha_1\) and \(\beta_1\) to compare in magnitude in each of the two sub-samples? Why?