

Empirical Exercises for Chapter 4

In this exercise you will investigate the relationship between a worker's age and earnings. (Generally, older workers have more job experience, leading to higher productivity and earnings.) But, how much do earnings increase with each additional year? Linear regression can be used to answer this question. On the Web site you will find the data file **CPS98** (in Excel and Stata formats). This file contains an extended version of the dataset for 1998 used in Table 3.1 of the text. It contains data on full-time, full-year workers, aged 25-34, with a high school diploma or B.A./B.S. as their highest degree. A detailed description is given in **CPS98 _Description**, available on the Web site. (These are the same data as in **CPS92_98** but limited to the year 1998.)

Use these data to answer the following questions.

1. Run a regression of average hourly earnings (*AHE*) on age (*Age*). What is the estimated intercept? What is the estimated slope? Use the estimated regression to answer the question "How much do earnings increase as workers age by one year?"
2. Is the estimated regression slope coefficient statistically significant? That is, can you reject the null hypothesis $H_0: \beta_1 = 0$ versus a two-sided alternative at the 10%, 5%, or 1% significance level? What is the *p*-value of the test?
3. Construct a 95% confidence interval for the slope coefficient.
4. Bob is a 26-year-old worker. Predict Bob's earnings using the estimated regression. Alexis is a 30-year-old worker. Predict Alexis's earnings using the regression.
5. Does age explain a large fraction of the variance in earnings across individuals? Explain.
6. What is the value of the standard error of the regression? What are the units for the standard error (meters, grams, dollars, cents, etc.)?
7. Repeat question (1) using only the data on females.
8. Repeat question (1) using only the data on males.
9. Is the effect of age on earnings different for men than for women?
10. Repeat question (4) using the regressions that you estimated in (7) and (8). Is this answer more accurate than the answer in (4)? Explain.
11. Repeat question (1) using only the data on high school graduates.
12. Repeat question (1) using only the data on college graduates.
13. Is the effect of age on earnings different for high school than for college graduates? Explain.