

Empirical Exercises for Chapter 6

In this exercise you will investigate the relationship between a worker's age and earnings.

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, age 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.

Use these data to answer the following questions.

1. Run a regression of average hourly earnings (AHE) on age (Age), gender ($Female$), and education ($Bachelor$). If Age increases from 25 to 26, how are earnings expected to change? If Age increases from 33 to 34, how are earnings expected to change?
2. Run a regression of the logarithm average hourly earnings, $\ln(AHE)$, on Age , $Female$, and $Bachelor$. If Age increases from 25 to 26, how are earnings expected to change? If Age increases from 33 to 34, how are earnings expected to change?
3. Run a regression of the logarithm average hourly earnings, $\ln(AHE)$, on $\ln(Age)$, $Female$, and $Bachelor$. If Age increases from 25 to 26, how are earnings expected to change? If Age increases from 33 to 34, how are earnings expected to change?
4. Run a regression of the logarithm average hourly earnings, $\ln(AHE)$, on Age , Age^2 , $Female$, and $Bachelor$. If Age increases from 25 to 26, how are earnings expected to change? If Age increases from 33 to 34, how are earnings expected to change?
5. Do you prefer the regression in (3) to the regression in (2)? Explain.
6. Do you prefer the regression in (4) to the regression in (2)? Explain.
7. Do you prefer the regression in (4) to the regression in (3)? Explain.
8. Plot the regression relation between Age and $\ln(AHE)$ from (2), (3), and (4) for males with a high school diploma. Describe the similarities and differences between the estimated regression functions. Would your answer change if you plotted the regression function for females with college degrees?
9. Run a regression of $\ln(AHE)$, on Age , Age^2 , $Female$, $Bachelor$, and the interaction term $Female \times Bachelor$. What does the coefficient on the interaction term measure? Alexis is a 30-year-old female with a bachelor's degree. What does the regression predict for her value of $\ln(AHE)$? Jane is a 30-year-old female with a high school degree. What does the regression predict for her value of $\ln(AHE)$? What is the predicted difference between Alexis's and Jane's earnings? Bob is a 30-year-old male with a bachelor's degree. What does the regression predict for his value of

$\ln(AHE)$? Jim is a 30-year-old male with a high school degree. What does the regression predict for his value of $\ln(AHE)$? What is the predicted difference between Bob's and Jim's earnings?

10. Is the effect of *Age* on earnings different for males than females? Specify and estimate a regression that you can use to answer this question.

11. Is the effect of *Age* on earnings different for high school than college graduates? Specify and estimate a regression that you can use to answer this question.

12. After running all of these regressions (and any others that you want to run), summarize the effect of age on earning for young workers.