Dependent variable: average hourly earnings (*AHE*).

Regressor	(1)	(2)	(3)
College (X_1)	10.47 (0.29)	10.44 (0.29)	10.42 (0.29)
Female (X_2)	−4.69 (0.29)	−4.56 (0.29)	−4.57 (0.29)
Age (X_3)		0.61 (0.05)	0.61 (0.05)
Northeast (X_4)			0.74 (0.47)
Midwest (X_5)			−1.54 (0.40)
South (X_6)			−0.44 (0.37)
Intercept	18.15 (0.19)	0.11 (1.46)	0.33 (1.47)
Summary Statistics and Joint Tests			
F-statistic testing regional effects = 0			9.32
SER	12.15	12.03	12.01
R^2	0.165	0.182	0.185
n	7178	7178	7178

Problems and Applications

Stock & Watson, Introduction (4th), Chapter 7, Exercise 3.

Using the regression results in column (2):

a. Is age an important determinant of earnings? Use an appropriate statistical test and/or confidence interval to explain your answer.

b. Sally is a 29-year-old female college graduate. Betsy is a 34-year-old female college graduate. Construct a 95% confidence interval for the expected difference between their earnings.

Problems and Applications

Using the regression results in column (2):

a. Is age an important determinant of earnings? Use an appropriate statistical test and/or confidence interval to explain your answer.

The t-statistic is $0.61/0.05 = 12.2 > 1.96$, so the coefficient on Age is statistically significant at the 5% level. Age is therefore an important determinant of earnings. A 95% confidence interval for the population coefficient on Age is:

$$[0.61 \pm 1.96 \times 0.05] = [0.512, 0.708]$$

Problems and Applications

Using the regression results in column (2):

b. Sally is a 29-year-old female college graduate. Betsy is a 34-year-old female college graduate. Construct a 95% confidence interval for the expected difference between their earnings.

The age difference is $\Delta Age = 34 - 29 = 5$ years, and so the expected difference between mean earnings for an age difference of 5 years is:

$$\begin{aligned} \Delta Age \times [0.61 \pm 1.96 \times 0.05] &= 5 \times [0.512, 0.708] \\ &= [2.56, 3.54] \end{aligned}$$