

Chapter 12. Econometrics

1. You are employed as a consultant to aid in a discrimination lawsuit filed by five female workers at a particular firm. These workers assert that the firm allegedly underpaid them relative to comparable male coworkers. To test this claim, you obtain data on the education levels and wages of all males employed by the firm. You estimate the following regression model:

$$\omega_m = 2.1 + 0.5EDUC$$

(0.9) (0.1)

where the numbers in parentheses are standard errors, ω_m is the wage of male workers, and $EDUC$ is years of schooling. Furthermore, you are presented with the following information on the five women filing the lawsuit:

| ω_f | $EDUC$ |
|------------|--------|
| 7 | 12 |
| 6 | 10 |
| 10 | 16 |
| 9 | 16 |
| 12 | 21 |

- (a) Calculate the predicted wage of each woman were she treated comparably to men. What is the difference between each female worker's actual wage and her predicted wage ($\hat{\omega}_f$) were she treated the same as a male worker?
 - (b) Do the results obtained provide conclusive evidence of discrimination against women by the firm?
2. In analyzing the various determinants of wages, you estimate the following model using data on males only:

$$\omega_i = \alpha_0 + \sum_{j=1}^{K-1} \alpha_j X_{ji} + \alpha_K RACE_i + \varepsilon_i$$

where ω_i is one's hourly wage, X_j , $j = 1, \dots, K$, are various control variables likely to influence wages (e.g., experience, tenure, occupation, industry, region of residence, education, on-the job training, etc.), and $RACE$ is a dummy variable equal to one if individual i is white and zero otherwise. If you obtain an estimate for $\alpha_K = 2.0$, with a standard error of 1.0, do you conclude that there is wage discrimination evident in the economy?