Self-evaluation Tests

Wages 5

Instructions

- Click **Start**.
- Answer the questions.
- Click **End**.
- The cell **Score:** shows the number of right answers.
- Each question is worth 1 point.
- Click **Correct** to check the correct answers.
- The test starts on the next page.
- Recommended duration: 35 minutes.

Questions

Open the data file `wages.gdt`. Consider the regression model that determine wages (W) as a function of experience (EX), education (ED), tenure (T), ethnic group, gender and marital status.

$$\begin{aligned} W_i &= \beta_1 + \beta_2\, EX_i + \beta_3\, EX_i^2 + \beta_4\, ED_i + \beta_5\, T_i + \\ &+ \beta_6\, NW_i + \beta_7\, F_i + \beta_8\, M_i + u_i \end{aligned}$$

`Objective:` To modify this regression model so that it is possible to test the hypothesis that married women get lower wages.

Start **General Linear Regression Model**

1. To test this hypothesis the regression model should include the term:

(a) F_i^2 (b) M_i^2
(c) $F_i + M_i$ (d) $F_i \times M_i$

2. The appropriate regression model would be:

(a) $W = \beta_1 + \beta_2\, EX_i + \beta_3\, EX_i^2 + \beta_4\, ED_i + \beta_5\, T_i + \beta_6\, NW_i + \beta_7\, F_i^2 + \beta_8\, M_i + u_i$

(b) $W = \beta_1 + \beta_2\, EX_i + \beta_3\, EX_i^2 + \beta_4\, ED_i + \beta_5\, T_i + \beta_6\, NW_i + \beta_7\, F_i + \beta_8\, M_i^2 + u_i$

(c) $W = \beta_1 + \beta_2\, EX_i + \beta_3\, EX_i^2 + \beta_4\, ED_i + \beta_5\, T_i + \beta_6\, NW_i + \beta_7\, F_i + \beta_8\, M_i + \beta_9(F_i + M_i) + u_i$

(d) $W = \beta_1 + \beta_2\, EX_i + \beta_3\, EX_i^2 + \beta_4\, ED_i + \beta_5\, T_i + \beta_6\, NW_i + \beta_7\, F_i + \beta_8\, M_i + \beta_9(F_i \times M_i) + u_i$

Estimate the model you have chosen in the previous item:

3. The estimated coefficient of the variable education is:

(a) 0.523130 (b) 0.526584 (c) 0.560615 (d) 0.511415

4. The estimated variance of the error term is:

(a) 3.693086 (b) 2.828403 (c) 13.63888 (d) 7.99986

5. The estimated increment in wages when tenure increments by one year, holding the rest of the factors constant, is:

(a) 0.124839
(b) 0.523130
(c) 0.0482665
(d) 10.84

6. The expected difference in wages between a single woman and a single man, holding the rest of the factors constant, is:

(a) β_7 (b) β_8 (c) β_9 (d) $\beta_7 + \beta_9$

7. Is this difference statistically significant? (α =5%)

(a) Yes
(b) No

8. The expected difference in wages between a married woman and a married man, holding the rest of the factors constant, is:

(a) β_7 (b) β_8 (c) β_9 (d) $\beta_7 + \beta_9$

9. Is this difference statistically significant? (α =5%)

(a) Yes
(b) No

10. The expected difference in wages between married and single women, holding the rest of the factors constant, is:

(a) β_7 (b) β_8 (c) β_9 (d) $\beta_8 + \beta_9$

11. Is this difference statistically significant? (α =5%)

(a) Yes (b) No

12. The expected difference in wages between married and single men, holding the rest of the factors constant, is:

(a) β_7 (b) β_8 (c) β_9 (d) $\beta_8 + \beta_9$

13. Is this difference statistically significant? (α =5%)

(a) Yes (b) No

14. Test whether gender is a statistically significant variable. The null hypothesis is:

(a) $\beta_7 = \beta_9$ (b) $\beta_7 = \beta_9 = 0$
(c) $\beta_7 = 0$ (d) $\beta_9 = 0$

15. Test whether gender is a statistically significant variable. The sample value of the test statistic is:

(a) 20.96724 (b) 20.9628 (c) 31.2584 (d) 34.7594

16. Gender is a statistically significant variable (α =5%).

(a) True (b) False

17. Test whether marital status is a statistically significant variable. The null hypothesis is:

(a) $\beta_8 = \beta_9$ (b) $\beta_8 = \beta_9 = 0$
(c) $\beta_8 = 0$ (d) $\beta_9 = 0$

18. Test whether marital status is a statistically significant variable. The sample value of the test statistic is:

(a) 10.5231 (b) 19.3474 (c) 11.237 (d) 20.9628

19. Marital status is a statistically significant variable (α =5%).

(a) Yes (b) No

20. Ethnic group is a statistically significant variable (α =5%).

(a) Yes (b) No

21. The estimated increase in wages when experience increases by one year, holding the rest of the factors constant, is:

(a) 0.198694 for an individual with 10 years of experience.

(b) 0.198694 + 0.0400650 for an individual with 10 years of experience.

(c) 0.198694 - 0.080130 for an individual with 10 years of experience.

(d) 0.198694 - 0.0400650 for an individual with 10 years of experience.

22. It is estimated that the expected wage for a white single man with 19 years of education lays between: ($\alpha = 5\%$)

(a) 3.50 and 5.25 (b) 1.50 and 12.76

(c) 7.13 and 2.866 (d) 2.866 and 1.50

23. A white single man with 19 years of education and 2 years of experience has been hired by a new firm. He claims to get 15.14 dollars per hour. Do you think it is possible?

(a) Yes (b) No

End Correct