

Week 5 Assignment

Applied Econometrics

1. The one-way error component model is where;
 - a. The intercept is fixed over subject but not over time
 - b. **The intercept is fixed over time but not over subjects**
 - c. The intercept is fixed over both time and subjects
 - d. The intercept is variant over both time and subject
 - e. All of the above

2. $R^2_{LSDV} > R^2_{FE}$ because;
 - a. We are including too many explanatory variables as year dummies in LSDV model
 - b. We are including too many explanatory variables as year dummies in FE model
 - c. We are including too many explanatory variables as individual specific dummies in FE model
 - d. Number of years in the data set is more than the number of cross sections
 - e. **We are including too many explanatory variables as individual specific or time specific dummies in LSDV model**

3. If unobserved individual specific time invariant variable α_i is insignificant then quasi time demeaning factor of a Random effects model will be _____ and we can use _____
 - a. One, Pooled OLS
 - b. Zero, Fixed Effects
 - c. One, Fixed Effects
 - d. Zero, OLS
 - e. **Zero, Pooled OLS**

4. In Hausman test for Panel Data model, rejecting H_0 means,
 - a. **Fixed effect model is preferred to Random effect model**
 - b. REM is preferred to FEM
 - c. Both REM and FEM are equally preferred
 - d. Neither REM nor FEM is preferred
 - e. FEM is preferred to REM but provisionally

5. Suppose you are travelling from Chennai to Bangalore. There are 3 modes of transportation available; Bus, Train, and Air. Which of the following will be the best suitable econometric model to measure the relative probability of choosing Train and Air in relation to choosing bus given individual specific features?
 - a. **Multinomial Logit/Probit model**
 - b. Conditional Logit/Probit Model

- c. Mixed Logit/Probit model
 - d. Tobit Model
 - e. Probit model
6. If ϵ_i is the unobserved effect, the Null hypothesis of Brusch-Pagan LM test to select between random effect and pooled OLS is;
- a. $cov(x_{it}, \epsilon_i) = 0$
 - b. $cov(x_t, \epsilon_i) = 0$
 - c. $cov(x_{it}, \epsilon_i) \neq 0$
 - d. $cov(x_t, \epsilon_i) \neq 0$
 - e. $cov(x_{it}, y_{it}) = 0$
7. In a Random Effects Model, let the composite error $v_{it} = a_i + u_{it}$, where a_i is uncorrelated with u_{it} and u_{it} has a constant variance σ_u^2 and are serially correlated. If $e_{it} = v_{it} - \bar{\theta v_{it}}$ where θ is quasi time demeaning factor then which of the following is/are true?
- a. $E(e_{it}) = 0$
 - b. $E(e_{it}) = 1$
 - c. $var(e_{it}) = \sigma_u^2$
 - d. Both B & C
 - e. Both A & C

Using JTRAIN.dta suppose you want to determine the impact of job training grant on hours of job training per employee. The basic model for three years is

$$hrsemp_{it} = \beta_0 + \delta_1 d88_t + \delta_2 d89_t + \beta_1 grant_{it} + \beta_2 grant_{it-1} + \beta_3 log(employ)_{it} + a_i + u_{it}$$

8. If you want to estimate the above-said model using FE estimation, what will be the average value of the unobserved factor, a_i ?
- a. 14.92
 - b. 14.28
 - c. 19.44
 - d. 48.21
 - e. 9.32
9. The value of the test statistic for overall significance of the estimated Fixed Effects Model is,
- a. 48.21
 - b. 0.49
 - c. 5.12

- d. 22.06
- e. 0.64

10. In the above-said model, if a firm has 10% more employees, what is the change in average hours of training?

- a. 17%
- b. 19%
- c. 41%
- d. 42%
- e. 18%