PREDICTIVE ANALYTICS ISM-E1003

EXAM 15.04. 2021

1. Consider the following linear model y = a + bx, where a = 0.007 and b = 0.686. The covariance matrix of the estimates is:

|  |  |  |
| --- | --- | --- |
|  | a | b |
| a | 2.60e-05 | -5.15 |
| b | -5.15 | 1.42e-02 |
|  |  |  |

The corresponding *t*-statistics are:

1. 269.23 and 61.13
2. **1.37 and 7.28**
3. 2.60 and 1.42
4. 1.96 and 2.62.
5. Regression is concerned with describing and evaluating the relationship between
   1. A dependent variable and regressands
   2. An independent variable and regressors
   3. **A dependent variable and regressors**
   4. An effect variable and explained variables.
6. What is the most appropriate interpretation of the assumption  concerning the regression disturbance terms?
   1. The errors are nonlinearly independent of one another
   2. The errors are linearly dependent of one another
   3. The covariance of the errors is constant and finite over all its values
   4. **The errors are linearly independent of one another.**
7. Which one of the following statements must hold for EVERY CASE concerning the residual sums of squares for the restricted and unrestricted regressions?
   1. URSS > RRSS
   2. URSS ≥ RRSS
   3. RRSS > URSS
   4. **RRSS ≥ URSS.**
8. Which of the following would NOT be a potential remedy for the problem of multicollinearity between regressors?
   1. Removing one of the explanatory variables
   2. **Transforming the data into logarithms**
   3. Transforming two of the explanatory variables into ratios
   4. Collecting higher frequency data on all of the variables.
9. If a series, *yt*, follows a random walk (with no drift), what is the optimal 1-step-ahead forecast for *y*?
   1. **The current value of *y***
   2. Zero
   3. The historical unweighted average of *y*
   4. An exponentially weighted average of previous values of *y*.
10. Which of these is a characteristic of a stationary series?
    1. Constant mean
    2. Constant autocovariances for each given lag
    3. Constant variance
    4. **All of the above.**
11. The null hypotheses in the Dickey-Fuller and KPSS tests are:
    1. Dickey-Fuller H­0­: I(0) and KPSS H­0­: I(0)
    2. **Dickey-Fuller H­0­: I(1) and KPSS H­0­: I(0)**
    3. Dickey-Fuller H­0­: I(0) and KPSS H­0­: I(1)
    4. Dickey-Fuller H­0­: I(1) and KPSS H­0­: I(1)
12. Which of these is a type of panel estimator approach?

i. Fixed effects

ii. Random effects

iii. Seemingly unrelated regression effects

iv. Time-varying effects.

1. i only
2. **i and ii only**
3. i, ii, and iii only
4. i, ii, iii, and iv.
5. Which of these are advantages of using panel data?

i. We can address a broader range of issues and tackle more complex problems than would be possible with pure time-series or pure cross-sectional data alone

ii. It allows us to increase the number of degrees of freedom

iii. It allows us to increase the power of the tests

iv. We can remove the impact of certain forms of omitted variables bias in regression results.

1. i only
2. i and ii only
3. i, ii, and iii only
4. **i, ii, iii, and iv.**