File: Ch09, Chapter 9, Regression With Time-Series Data: Stationary Variables

Multiple Choice

1. Which of the following is an example of a distributed lag model?
a.) $y_t = f(x_t, x_{t-1}, x_{t-2}.....)$
b.) $y_t = f(y_{t-1}, x_t, x_{t-1}, x_{t-2}...)$
c.) $y_t = f(x_t, x^2_t, x^3_t)$
d.) $y_t = f(x_t) + g(e_{t-1})$

2. Which of the following is an example of an autoregressive distributed lag model?
a.) $y_t = f(x_t, x_{t-1}, x_{t-2}.....)$
b.) $y_t = f(y_{t-1}, x_t, x_{t-1}, x_{t-2}...)$
c.) $y_t = f(x_t, x^2_t, x^3_t)$
d.) $y_t = f(x_t) + g(e_{t-1})$

3. Which assumption is most likely to be violated with times series data:
a.) $E(e_t)=0$
b.) $var(e_t)=\sigma^2$
c.) $cov(e_t, e_s) =0, t\neq s$
d.) $e_t \sim N(0,\sigma^2)$

4. Finite distributed lag models are most useful for
a.) forecasting and economic policy analysis
b.) testing hypotheses and measuring economic dynamics
c.) measuring impacts and optimizing economic outcomes
d.) measuring autocorrelation and autoregressive dynamics

5. How do you calculate the total multiplier for a finite distributed lag model where *q* is the number of lags?
a.) β_q
b.) $\sum_{s=0}^{q} \beta_s$
c.) $\sum_{s=1}^{q} \beta_s$
d.) $\beta_q-\beta_0$

6. If you use a times series data set with 100 years worth of data to estimate a distributed lag model of order 5, how many observations will you have for estimation?
a.) 100
b.) 5
c.) 95
d.) 105

7. If you have a times series data set with 100 years worth of data that you use to estimate a distributed lag model of order 3, how many degrees of freedom will you have for hypothesis testing on estimated coefficients?
a.) 92
b.) 95
c.) 99
d.) 100

8. When autocorrelation is present, which assumption of the linear regression model is incorrect?
a.) $E(e_t)=0$
b.) $var(e_t)=\sigma^2$
c.) $cov(e_t, e_s)=0, t\neq s$
d.) $e_t \sim N(0,\sigma^2)$

9. What is second order sample autocorrelation?
a.) correlation between a mean and the second moment of the sample distribution
b.) a test statistic distributed $N(0,\sqrt[2]{T-1})$
c.) correlation between observations that are two time periods apart
d.) correlation between the dependent variable and a squared explanatory variable

10. When using the LM test for serial correlation, what is the null hypothesis?
a.) it depends on the model specification
b.) no serial correlation is present
c.) statistically significant serial correlation with the first lag
d.) statistically significant serial correlation with unspecified lag

11. When performing a LM test for serial correlation, how is the test statistic distributed when the null hypothesis is true?
a.) χ^2
b.) t_{n-1}
c.) F
d.) z

12. When a lagged dependent variable is included as a regressor, we must use a weaker form of assumption TSMR2 that allows the error term to be correlated with future values of explanatory variables, but not present or past values. What implications does this weaker assumption have for our regressors?
a.) biased, but consistent
b.) unbiased, but no longer BLUE
c.) unbiased, but no longer linear
d.) biased, but with minimum variance

13. What are the consequences of ignoring or failing to recognize serial correlation?
a.) biased, but consistent
b.) unbiased, but no longer BLUE
c.) unbiased, but no longer linear
d.) biased, but with minimum variance

14. Which of the following is NOT true of Newey-West standard errors?
a.) allows valid inference despite the presence of serial correlation
b.) does not require knowledge of structure of serial correlation
c.) valid when estimated using stationary data
d.) always produce smaller standard error estimates, which makes them the BLUE estimator

15. Using the notation ARDL(*p,q*) what does *p* represent?
a.) the number of lagged dependent variables included as explanatory variables
b.) the number of lagged explanatory variables included
c.) the frequency of the time series
d.) the degree or integration in the error term

16. Using the notation ARDL(*p,q*) what does *q* represent?
a.) the number of lagged dependent variables included as explanatory variables
b.) the number of lagged explanatory variables included
c.) the frequency of the time series
d.) the degree or integration in the error term

17. Which of the following is not a valid criterion for choosing *p* and *q* in an ARDL model?
a.) fewest number of lags that eliminates serial correlation
b.) statistical significance of coefficient estimates
c.) minimization of AIC and SC
d.) maximization of R^2

18. Which of the following is an ARDL (1,3) model?
a.) $y_t = \delta + \theta_1 y_{t-1} + \theta_2 y_{t-2} + \theta_3 y_{t-3} + \delta_0 x_t + \delta_1 x_{t-1} + \delta_2 x_{t-2} + \delta_3 x_{t-3} + v_t$
b.) $y_t = \delta + \theta_1 y_{t-1} + \delta_0 x_t + \delta_1 x_{t-1} + \delta_2 x_{t-2} + \delta_3 x_{t-3} + v_t$
c.) $y_t = \delta + \theta_1 y_{t-1} + \theta_2 y_{t-2} + \theta_3 y_{t-3} + \delta_0 x_t + \delta_1 x_{t-1} + v_t$
d.) $y_t = \delta + \theta_1 y_{t-1} + \theta_2 y_{t-2} + \theta_3 y_{t-3} + \delta_0 x_t + v_t$

19. Which of the following is an ARDL(3,0) model?
a.) $y_t = \delta + \theta_1 y_{t-1} + \theta_2 y_{t-2} + \theta_3 y_{t-3} + \delta_0 x_t + \delta_1 x_{t-1} + \delta_2 x_{t-2} + \delta_3 x_{t-3} + v_t$
b.) $y_t = \delta + \theta_1 y_{t-1} + \delta_0 x_t + \delta_1 x_{t-1} + \delta_2 x_{t-2} + \delta_3 x_{t-3} + v_t$
c.) $y_t = \delta + \theta_1 y_{t-1} + \theta_2 y_{t-2} + \theta_3 y_{t-3} + \delta_0 x_t + \delta_1 x_{t-1} + v_t$
d.) $y_t = \delta + \theta_1 y_{t-1} + \theta_2 y_{t-2} + \theta_3 y_{t-3} + \delta_0 x_t + v_t$