

MIDTERM EXAMINATION #4 ANSWER KEY
“Time Series”
April 25, 2006

VERSION A

I. MULTIPLE CHOICE: [3 pts each—33 pts total]

(1)d. (2)c. (3)a. (4)a. (5)d. (6)b. (7)c. (8)c. (9)d. (10)c. (11)b.

II. PROBLEMS

(1) [Finite distributed lag: 9 pts] a. dynamic. b. 3.7. c. 7.0.

(2) [Breusch-Godfrey test: 12 pts] Degrees of freedom = 1, value of test statistic=4.8, critical point=3.84, reject null hypothesis=REJECT.

(3) [Quasi-differencing: 16 pts]

Obs.	Transformed data			
t	y_t	Replacement for intercept	x_{2t}	x_{3t}
1				
2	2	0.6	11	8
3	20	0.6	12	3

(4) [Random walk: 15 pts] a. 4.7t. b. 4t. c. nonstationary. d. 4.7. e. 4.0.

(5) [Forecasting: 9 pts] a. 37.4. b. 37.84. c. 39.0.

III. CRITICAL THINKING [6 pts]

If y_t and x_t are cointegrated, they wander off over time, sometimes far from their means, as integrated processes always do. Yet they wander off together, never drifting far from the relationship $y_t - \beta x_t = 0$.

Prices or returns on closely-related assets are likely to be cointegrated. Their prices may wander, but arbitrage prevents prices from wandering far apart. Examples include interest rates on similar securities, or the prices of gold in New York and London.

Prices of goods viewed by consumers as close substitutes are also likely to be cointegrated. Their prices may wander, but high elasticity of substitution by consumers prevents prices from wandering far apart. Examples include Prices of different varieties of the same fruit or vegetable, prices of the same good sold in different size packages, or prices of the same good sold in nearby locations.

VERSION B

I. MULTIPLE CHOICE: [3 pts each—33 pts total]

(1)a. (2)d. (3)b. (4)c. (5)b. (6)a. (7)e. (8)d. (9)d. (10)d. (11)a.

II. PROBLEMS

(1) [Finite distributed lag: 9 pts] a. dynamic. b. 2.4. c. 3.8.

(2) [Breusch-Godfrey test: 12 pts] Degrees of freedom = 1, value of test statistic=3.0, critical point=3.84, reject null hypothesis=CANNOT REJECT.

(3) [Quasi-differencing: 16 pts]

Obs.	Transformed data			
t	y_t	Replacement for intercept	x_{2t}	x_{3t}
1				
2	15	0.4	9	7
3	14	0.4	9	1

(4) [Random walk: 15 pts] a. 2.4t. b. 3t. c. nonstationary. d. 2.4. e. 3.0.

(5) [Forecasting: 9 pts] a. 22.8. b. 15.2. c. 13.0.

III. CRITICAL THINKING [6 pts]

Same as Version A.

[end of answer key]