



**1<sup>st</sup> SEM. 2016/2017**

**UNIVERSITY OF SWAZILAND**

**FINAL EXAMINATION PAPER**

**PROGRAMME: B.Sc. in Agricultural Economics and Agribusiness Management  
Year 3**

**COURSE CODE: AEM 302**

**TITLE OF PAPER: INTRODUCTION TO ECONOMETRICS**

**TIME ALLOWED: TWO (2) HOURS**

**INSTRUCTION: 1. ANSWER ALL QUESTIONS  
2. EACH QUESTION CARRIES TWENTY FIVE (25) MARKS**

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THE CHIEF INVIGILATOR**

**QUESTION 1**

A researcher wanted to explain the relationship between the quantity demanded and price of cocaine, she/he designs the study to account for three possibilities: confounding variables, reverse causation, and chance.

- i. What is a confounding variable? Do you believe that the quality of cocaine is a potential confounding variable when analyzing the relationship between quantity demanded and price? Carefully explain. **[10 Marks]**
- ii. What is reverse causation? Do you believe there may be reverse causation in the relationship between the quantity demanded and price of cocaine? Carefully explain. **[8 MARKS]**
- iii. What role does chance play in analyzing the relationship between the quantity demanded and price of cocaine? Briefly explain how you can account for chance. **[7 MARKS]**

**QUESTION 2**

Given the regression model:

$$Y_t = \beta_0 + \beta_1 X_{1t} + \beta_2 X_{2t} + \varepsilon_t$$

- i. Discuss the procedures of White's general test for heteroskedasticity. **[15 MARKS]**
- ii. Discuss the procedure of the LM or Breush-Godfrey test for higher order serial correlation. **[10 MARKS]**

**QUESTION 3**

The relationship between nominal exchange rate and relative prices. From annual observations from 1980 to 1994, the following regression results were obtained, where  $Y$  = exchange rate of the Canadian dollar to the U.S. dollar (CD/\$) and  $X$  = ratio of the U.S. consumer price index to the Canadian consumer price index; that is,  $X$  represents the relative prices in the two countries:

$$\hat{Y} = 6.682 - 4.318X_t \quad r^2 = 0.528$$

Standard errors = (1.22) (1.333)

- i. Interpret this regression. How would you interpret  $r^2$ ? [10 MARKS]
- ii. Does the negative value of  $X_t$  make economic sense? What is the underlying economic theory? [8 MARKS]
- iii. Suppose we were to redefine  $X$  as the ratio of the Canadian CPI to the U.S. CPI. Would that change the sign of  $X$ ? Why? [7 MARKS]

**QUESTION 4**

Suppose that we want to estimate a consumption function:

$$C_t = \beta_0 + \beta Y_t + \varepsilon_t$$

Where  $C_t$  = consumption, and  $Y_t$  = disposable income.

- i. Assume that we have a reason to believe that war which has been conducted in 5 of the 50 years (which is the number of observations) has affected the level of consumption. Re-specify the model by

accounting for the impact of war. Discuss how to test for the impact of war.

**[15 MARKS]**

- ii. Suppose that we suspect that the war affected the marginal propensity to consume. Re-specify the model by accounting for impact of war. Discuss how to test for the impact of war on marginal propensity to consume.

**[10 MARKS]**