UNIVERSITY OF ESWATINI

FACULTY OF SOCIAL SCIENCES

DEPARTMENT OF ECONOMICS

RE-SIT EXAMINATION

JULY 2019

TITLE OF PAPER:	ECONOMETRICS METHODS II
COURSE CODE:	ECO420
TIME ALLOWED:	2 HOURS
INSTRUCTIONS:	ANSWER ANY THREE QUESTIONS
	EACH QUESTION CARRIES 20 MARKS

REQUIREMENTS

1. SCIENTIFIC CALCULATOR

DO NOT OPEN THE PAPER UNTIL YOU ARE INSTRUCTED TO DO SO

QUESTION 1

a) What are the special features of (a) cross-section data, (b) time series data, and (c) panel data? [4]

b) What is meant by a fixed effects model (FEM)? Since panel data have both time and space dimensions, how does FEM allow for both dimensions? [4]

c) What is meant by an error components model (ECM)? How does it differ from FEM? When is ECM appropriate? And when is FEM appropriate? [4]

d) Is there a difference in FEM, least-squares dummy variable (LSDV) model, and covariance model? [4]

e) When are panel data regression models inappropriate? Give examples. [4]

QUESTION 2

Models that describe the behavior of a variable over time are called growth models. Such models are used in a variety of fields, such as economics, biology, botany, ecology, and demography. Growth models can take a variety of forms, both linear and nonlinear. Consider the following models, where Y is the variable whose growth we want to measure; t is time, measured chronologically; and u is the stochastic error term.

a) $Y_t = \beta_1 + \beta_2 t + u_t$ [5]

b) $ln\, Y_t = \beta_1 + \beta_2 t + u_t$ [5]

c) Logistic growth model: $Y_t = \frac{\beta 1}{1+\beta_2 e^{-\beta 3t}} + u_t$ [5]

d) Gompertz growth model: $Y_t = \beta_1 e^{-\beta 2 e^{-\beta 3t}} + u_t$ [5]

Find out the properties of these models by considering the growth of Y in relation to time.

QUESTION 3

i. Highlight the AIC and the Schwart Criterion (stating all relevant formulae) [10]

ii. Suppose you are interested in developing a model has which model selection criteria would you use? Analytically and intuitively justify your choice. [10]

QUESTION 4

i. Discuss the idea behind recursive least squares. [10]

ii. Discuss the Chow's Prediction Error method. [10]