MACHAKOS UNIVERSITY

University Examinations for 2019/2020 Academic Year

SCHOOL OF BUSINESS AND ECONOMICS

DEPARTMENT OF ECONOMICS

FOURTH YEAR SECOND SEMESTER EXAMINATION FOR

BACHELOR OF ECONOMICS AND FINANCE

BACHELOR OF ECONOMICS

ECONOMICS AND STATISTICS

EES 404: ECONOMETRIC MODELING AND METHODS

DATE: 22/10/2020 **TIME: 2:00 – 4:00 PM**

INSTRUCTIONS:

Answer Question ONE and any other TWO questions

QUESTION ONE (COMPULSORY) (30 MARKS)

a) Briefly explain four types of economic models (8 marks)

b) A researcher did a study to examine the impact of advertisement expenditure (X) on the sales of companies (Y) in a certain sector in the economy. She sampled ten of such companies and obtained the following results of advertisement expenditure and the sales of companies in thousands of US dollars

$\Sigma X = 777$ $\Sigma Y = 1,657$ $\Sigma X^2 = 70,903$ $\Sigma XY = 132,938$ $\Sigma Y^2 = 277,119$

i. Estimate and interpret a linear sales function for the companies in the sector(6 marks)

ii. Calculate the MPC and MPS and interpret them (4 marks)

iii. Evaluate the above-estimated function on the basis of Statistical criteria R^2(2 marks)

c) Explain the procedure of econometric modelling that most investigators commonly follow as standard method for applied regression analysis (10 marks)

QUESTION TWO (20 MARKS)

An economics student would like to study factors influencing demand for off-campus hostels in Machakos University. He found out that students made their choices for hostels following a certain pattern. He found out that most of the students were guided by rental charges (R), personal

incomes (Y) and hostels facilities (F). He measured the demand for the hostels using the percentage rate of occupation (O) on average

a) Write a general econometric model the student needs for his regression analysis and explain its five elements. Use the letters specified to denote the variables (10 marks)

b) Explain five criteria that the student could use for judging the validity of the model (10 marks)

QUESTION THREE (20 MARKS)

a) State five uses of an economic model (5 marks)

b) Discuss the procedure for conducting empirical economic analysis using the theory of demand (15 marks)

QUESTION FOUR (20 MARKS)

A researcher sampled ten households and recorded their monthly incomes and consumption in thousands of Kenya Shillings as follows

Household	A	B	C	D	E	F	G	H	I	J
Income	90	47	38	70	64	89	96	65	88	52
Consumption	40	20	25	45	50	37	48	52	35	30

a) Estimate a consumption function and interpret it (6 marks)

b) Calculate and interpret coefficient of determination and Marginal propensity to save (6 marks)

c) Evaluate the above estimated function on the basis of Keynesian Consumption theory (4 marks)

d) Estimate the level of savings for an income of KShs 124,000 (4 marks)

QUESTION FIVE (20 MARKS)

An institute of economic analysis conducted a study to determine the influence of economic variables on foreign direct investment inflows (fdi) of different countries. The variables were expressed as follows: degree of openness (open), gross domestic product (gdp), external debt (exd), inflation (inf), lending interest rate (lir) and internet use (internetuse). d1, d2…. to d7 represent the dummy variables for 7 countries being studied. A regression analysis was conducted using STATA and the following results were generated.

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. reg fdi open gdp exd inf lir internetusersper100people d1 d2 d3 d4 d5 d6 d7
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Source	SS	df	MS	Number of obs =	120
				F(13, 106) =	26.97
Model	1235.82438	13	95.0634139	Prob > F =	0.0000
Residual	373.6126	106	3.52464717	R-squared =	0.7679
				Adj R-squared =	0.7394
Total	1609.43698	119	13.5246805	Root MSE =	1.8774

fdi	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
open	.0379068	.0186085	2.04	0.044	.0010137	.0747999
gdp	.0336	.0495217	0.68	0.499	-.0645817	.1317816
exd	-.0112656	.0053895	-2.09	0.039	-.0219507	-.0005805
inf	-.0494743	.0279642	-1.77	0.080	-.1049161	.0059674
lir	.2281789	.0391883	5.82	0.000	.1504842	.3058736
internetus~e	.1684454	.0384648	4.38	0.000	.0921852	.2447057
d1	2.096697	.8511876	2.46	0.015	.4091354	3.78426
d2	-3.540151	.7682881	-4.61	0.000	-5.063357	-2.016946
d3	-2.25814	.9166219	-2.46	0.015	-4.075432	-.4408485
d4	-6.388576	1.515923	-4.21	0.000	-9.394041	-3.38311
d5	-1.72165	.7115396	-2.42	0.017	-3.132347	-.3109537
d6	.5714361	2.441445	0.23	0.815	-4.268966	5.411838
d7	-.2913584	.7060969	-0.41	0.681	-1.691264	1.108547
_cons	-2.363246	1.124113	-2.10	0.038	-4.591908	-.1345828

a) Write down the general econometric and the estimated regression equations (5 marks)

b) Discuss the regression results above in terms of the statistical significance of the estimated coefficients of the model (10 marks)

c) Evaluate the model on the basis of the R-squared and F-test. (5 marks)