**Econometric Analysis II: Practice Questions**

1. Consider the model:  If β has three alternative estimators – (i), (ii), and (iii) , examine if they are unbiased.

Derive the expression for the variance of each of these estimators. Which of the following estimators has the minimum variance?

; (ii), and (iii)

1. Consider the following two regression models:

Model I:  with  = Monthly per capita consumption expenditure;  = Monthly per capita income; for the APL households, and  for the BPL households; and

Model II:  with  = Monthly per capita consumption expenditure;  = Monthly per capita income; for the BPL households, and  for the APL households

How will the regression results differ between these two models in respect of estimates of the coefficients, their standard errors, goodness-of-fit, and statistical significance of the model? Justify your answer. 3

1. If the model  is estimated instead of the true model , examine if the OLS estimator of the intercept will be unbiased.

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1. If the model  is estimated instead of the true model , will there be any consequence on statistical significance of the estimated model? Justify your answer.
2. Using a suitable set of regression results, explain why specification/selection of appropriate model is important in econometric modelling. Also, discuss how you will select the appropriate model(s) in such cases.
3. While estimating a distributed lag model, Almon transformation process should be preferred to the Koyck transformation procedure. Comment on the statement with justification/proof.
4. Why do we introduce lags in econometric models? How does the adaptive expectation model differ from the partial adjustment model? Can one estimate both the models by applying the OLS method? Justify your answer.
5. Assume that the true regression model is . But, a student has estimated the model  (here, *x2* and *x3* are deviations of *X2* and *X3* from their respective arithmetic means). Will the regression results differ? Justify your answer.
6. Consider the production function . How can one examine if the production function follows constant returns to scale?
7. Prove that for regression the model , where *r12* stands for the pair-wise correlation coefficient between *X1* and *X2*. How will you interpret this expression?