



IMU-CDC Individual Research Travel Support Program
Activity Reporting Form

Name of Grantee: ADEWALE FOLARANMI LUKMAN
Home Institution and Country of Grantee: LANDMARK UNIVERSITY, NIGERIA
Name of the Host: PROFESSOR B. M. GOLAM KIBRIA
Name of the Host Institution and Country: FLORIDA INTERNATIONAL UNIVERSITY, USA
Topic of the Research Activity: ALMON-KL ESTIMATOR FOR THE DISTRIBUTED LAG MODEL
Date: APRIL 1 TO APRIL 30, 2021

The Progress Report

The research visit provides us with the opportunity to propose a new estimator to handle multicollinearity in the distributed lag model. Also, we were able to introduce another new estimator to solve multicollinearity in a beta regression model. Practitioners employ regression models to model the relationship between variables. Distributed lag model (DLM) is a model that is commonly adopted to predict the current values of a response variable based on both the current values of a regressor (explanatory variable) and its lagged values. In contrast, the beta regression model (BRM) is the most appropriate model for modelling the rates and proportions. It is often used when the response variable (y) is measured continuously on the interval $y \in (0, 1)$. The estimation of these two models becomes very difficult when the independent variables are correlated. However, with this research work, we developed two new estimators for each model for effective model estimation. The article on the distributed lag model has been submitted to the Arab Journal of Basic and Applied Sciences. The one on the Beta regression model is under review at Alexandria Engineering Journal.

Furthermore, this visit gave me the privilege to present a seminar titled "Dealing with multicollinearity using the Kibria-Lukman Estimator" on the 22nd of April, 2021, in the department. This research visit allowed me to interact with other faculties in the department, and we discussed some future study we could carry out together.

The planned future activities based on this visit is to extend the KL estimator to high dimensional data. Also, to combine the estimator to some machine learning techniques.

I paste some of the pictures taken from this visit as follows:



I appreciate IMU for the financial commitment that made this visit possible. I am grateful to the administrative staff of IMU for every assistance.

Yours Sincerely

Adewale F. Lukman