Plenary Session (PS5): Professor Dwivedi Memorial Lecture
9:00 – 10:00 July 16, 2021

Moderator: Yogen Chaubey

Speaker: Serena Ng, Columbia University

Prof. T.D. Dwivedi

Title of the Talk: *Factor-based imputation of missing data*

Abstract: Researchers are blessed with a wealth of data for analysis, but more often than not, values in some entries of the data matrix are missing. We consider factor-based imputation (FBI) in a large panel setting. After rearranging the data, we estimate the factors from a "tall" block and the loadings from a "wide" block. Assuming that a strong factor structure holds for the full panel of data and its sub-blocks, it is shown that consistent estimates of the common component and thus missing values can be obtained without regularization or iteration.

Two applications of FBI are considered. The first is estimation of counterfactuals when potential outcomes have a factor structure. We consider estimation of average and individual treatment effects on the treated and establish a normal distribution theory that can be useful for hypothesis testing.

Unbiased FBI estimation of the missing data will unfortunately create biased estimates of the variances because the idiosyncratic noise has been set to zero. In the second application, we show how a second imputation that overlays the level estimates with random variations will improve covariance estimates. Implications of missing data for portfolio allocations and risk management are studied.

About the Speaker: Serena Ng, Columbia University

Serena Ng is Edwin W. Richert Professor of Economics at Columbia University. She is a fellow of the Econometric Society, the International Association of Applied Econometrics, Society of Financial Econometrics, and a member of the National Bureau of Economic Research. She received her B.A. from the University of Western Ontario and Ph.D. from Princeton University.

Her primary interest is modeling and analysis of economic data. She has written extensively on model selection, factor analysis, forecasting, measures of uncertainty, and missing data. She is currently the Co-Managing Editor of the Journal of Econometrics.