Abstract Submitted
for the FWS19 Meeting of
The American Physical Society

Study on Economic Data Using Linear Exponential Method and SARIMA (Seasonal Autoregressive Integrated Moving Average) Model CHANYEOL KIM, RICHARD KYUNG, Choice Research Group — Cyclic oscillations are the up-and-down changes in the data during periods of such as recession and expansion. Due to the complexity and deseasonality of the data that include trend, cyclic, and irregular components, general approximation of the cyclic factors and iterative methods for the long-term behavior of economic data were employed for the presented analysis. In this paper three major goals such as predicting, modeling, and characterization were studied in order to get a better prediction. Modeling and predicting were performed in an iterative way using Holt's linear exponential smoothing technique with sequential updating equations. Smoothing parameters were used to estimate the level, trend, and seasonality. As the last step in the model building, Analysis of Variance (ANOVA) technique was used to assess the overall errors using the R-statistics. The least squares criterion was used to minimize the sum of square of vertical deviations. Finally, SARIMA (Seasonal Autoregressive Integrated Moving Average) model was used for the for time series forecasting on the data containing trends and seasonality. The Kernel Density Estimation (KDE) and normalized data were obtained thereafter.

Richard Kyung
Choice Research Group(CRG-NJ)

Date submitted: 07 Oct 2019 Electronic form version 1.4