

**IMPROVEMENT ON ARIMA MODEL FORECASTS
FOR SAVINGS AND CREDIT CO-OPERATIVE
SOCIETIES IN WAKISO DISTRICT
UGANDA (2008 – 2012)**

A Thesis

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Abstract

There were five approaches to forecasting based on time series data namely exponential smoothing methods, single equation regression models, simultaneous equation regression model, ARIMA models and VAR models. Since SACCOs dealt with time series data the researcher selected the ARIMA modeling approach in the research. The research was carried out on SACCOs in Wakiso District Uganda. The study specifically addressed the inadequacies of missing data using the Inverse Probability Weighing method and the Round Table Imputation method that was invented by the researcher, the software package designed to handle data for variables with equal and unequal number of observations, run an automated statistical tables system that enabled the setting of critical regions for the various statistical tests, carried out the tests for normality, linearity, heteroscedasticity and stationarity in an orderly manner according to the Classical Linear Regression Model and gave conclusions for those tests. The automated system provided seven ARIMA models from which the best fit was selected. The findings of the study were: Round Table Imputation method was found easy to apply and its results were consistent with the expectations, the Inverse Probability Weighing method was also found to be effective, SACCOs were able use the invented EOI to check their effectiveness at a glance and identify the areas of inadequacies, automated statistical tables were used which was convenient to the users to carry out various tests with ease and the availability of conclusions from the tests made the statistical package supportive in making conclusions. In conclusion, missing values in the data whether missing at random or not should be addressed before use for forecasting, unequal observations for the different variables were also considered no longer a hindrance to data analysis, automated statistical tables were useful and eliminated the omission and commission of picking the critical values manually and statistical tests that were carried out before the data was used for forecasting led to better results. It was recommended that when encountered with missing data the reason for missingness should be established and if it was found that the missing was at random remedial measures should be used to fill in the missing data but if the missingness was found not to be at random the missingness component should be included in the forecasting model, users of data that was of time series nature should use statistical computing package such as Herbo Arima which was an improvement of ARIMA data modeling system, the automated system was recommended for those users who may wish to do the forecasting without much ado as to the nature of the data they handled, statistical computing packages should have facility for users to access automated statistical tables to minimize on omission and commission errors and SACCOs should be able to use the Effective Operating Index provided in the computing package to monitor their effectiveness in the market.