



PHILIPPINE STATISTICAL ASSOCIATION, INC.

2/F Philippine Social Science Center
Commonwealth Avenue, Diliman, Quezon City
Telephone (632) 920-6513 Telefax (632) 456-1928
Email: psa.sec@gmail.com; psai.sec@gmail.com
PSA website : www.philstat.org.ph

THE PHILIPPINE STATISTICIAN 2007, Volume 56, Nos. 3-4

Approaches in Forecasting Cereals Production

Angela Dela Paz-Nalica and Erniel B. Barrios

Abstract

We assess the forecasting abilities of transfer function model and spatial autoregression, along with the possible benefits from deseasonalization. When the deterministic seasonal components are set aside, the structural dynamics in a time series model of the remaining stochastic components are better understood, hence empirically fitted well, facilitating forecasting. However, a model that best incorporates the interactions among different agents of seasonality is still superior to that only sets aside seasonality, not making it an integral part of the model. When there is a pronounced, stable seasonality usually occurring when deterministic seasonality dominates the stochastic seasonality, deseasonalization becomes beneficial for forecasting in transfer function models.

Spatial autoregression provides an alternative modeling framework when there is a constraint on available explanatory variables. Spatial and temporal autoregressions can account for spatial externalities and temporal accumulations that explain a large part of the fluctuations in a time series forecasting situation. Using rice and corn production data for the Philippines, forecast errors can be reduced by at least half with the inclusion of a spatial autoregressive term in the model.

Keywords: *ARIMA models, transfer function models, deseasonalization, spatial autoregression, backfitting*