

Weighted Modeling and Forecasting of Cocoa Production in Ghana: A Multivariate Approach

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ABSTRACT: *In this study, models were developed for forecasting the annual cocoa production in Ghana. Instead of using the 'best' model for forecasting; a weighted scheme was applied to all competing models, to obtain a weighted model. The weighted scheme used in this paper is the weighted ranking procedure. Annual production, export earnings, exchange rate and domestic processing of cocoa data from 1970 to 2012 from Ghana were used for this study. Forecast accuracy measured from the weighted vector error correction model (VECM) and that of the "best" vector error correction model was used to validate the model. The forecast value from the weighted forecast approach performed better than that of the "best" model. The weighted predicted values were regressed on the real production values to show whether the weighted VECM was adequate to explain the variations in the annual cocoa production. The adjusted R^2 was 0.952 indicating that, the weighted VECM model explained 95.2% of the annual production variability. Hence, the weighted vector error correction model is a better statistical technique in forecasting cocoa production in Ghana.*

Keywords: *ARIMA, weighted ranking, vector error correction model, validation*

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