

Forecasting Models for Steel Demand Uncertainty Using Bayesian Methods

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Abstract : A forecasting model for steel demand uncertainty in Thailand is proposed. It consists of trend, autocorrelation, and outliers in a hierarchical Bayesian frame work. The proposed model uses a cumulative Weibull distribution function, latent first-order autocorrelation, and binary selection, to account for trend, time-varying autocorrelation, and outliers, respectively. The Gibbs sampling Markov Chain Monte Carlo (MCMC) is used for parameter estimation. The proposed model is applied to steel demand index data in Thailand. The root mean square error (RMSE), mean absolute percentage error (MAPE), and mean absolute error (MAE) criteria are used for model comparison. The study reveals that the proposed model is more appropriate than the exponential smoothing method.

Keywords : forecasting model, steel demand uncertainty, hierarchical Bayesian framework, exponential smoothing method

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